REVISIONS OF AUSTRALIAN GROUND-HUNTING SPIDERS: II. ZOROPSIDAE (LYCOSOIDEA: ARANEAE)

ROBERT J. RAVEN AND KYLIE S. STUMKAT

Raven, R.J. & Stumkat, K.S. 2005 01 10: Revisions of Australian ground-hunting spiders: II. Zoropsidae (Lycosoidea: Araneae). *Memoirs of the Queensland Museum* **50**(2): 347-423. Brisbane. ISSN 0079-8835.

Four new genera (*Megateg*, *Krukt*, *Birrana*, *Kilyana*) and 24 new species (*Megateg bartholomai*, *Megateg covacevichae*, *Megateg elegans*, *Megateg gigasep*, *Megateg lesbiae*, *Megateg paulstumkati*, *Megateg ramboldi*, *Megateg spurgeon*, *Krukt eannoni*, *Krukt ebbenielseni*, *Krukt megma*, *Krukt piligyna*, *Krukt vicoopsae*, *Birrana bulburin*, *Kilyana bicarinatus*, *Kilyana campbelli*, *Kilyana corbeni*, *Kilyana dougcooki*, *Kilyana emngella*, *Kilyana hendersoni*, *Kilyana ingrami*, *Kilyana kroombit*, *Kilyana lorne*, *Kilyana obrieni*) are described from eastern Australia. Along with the Western Australian genus *Huntia* Gray & Thompson, 2001 and the New Zealand *Uliodon* Koch, 1873, these new genera are placed in the expanded concept of the Zoropsidae, here first formally recorded from Australia. The male Zoropsidae are defined by the combination of dorsal scopula pad on the cymbium, pedal tibiae cracked and strong paired spines on tibiae and metatarsi I and II. The Zoropsidae also include the Griswoldiinae which are transferred from the Miturgidae and Zorocratidae. The genera here transferred to the Zoropsidae are found in North America, Africa, Madagascar, Sri Lanka and now Australia and New Zealand; hence, the family is worldwide. The Zoridae have been found to have a grate-shaped tapetum and are hence transferred to the Lycosoidea. ❑ *Araneomorphae, Lycosoidea, Zoropsidae, taxonomy, Australia.*

Robert J. Raven (e-mail: RobertR@qm.qld.gov.au) and Kylie S. Stumkat, Queensland Museum, PO Box 3300, South Brisbane 4101, Australia; 31 March 2004.

Zoropsidae (Fig. 1) resemble Huntsman spiders (Sparassidae) and have not been reported from Australia. The family includes only *Zoropsis* Simon, 1878 from Europe and North America (introduced, see Griswold & Ubick, 2001), *Akamasia* Bosselaers, 2002 from Cyprus, and *Takeoa* Lehtinen, 1967 from Japan (Bosselars, 2002). Simon (1892) admitted *Acanthoctenus* Keyserling, 1876, *Zorocrates* Simon, 1888 and *Raecins* Simon, 1892. Those genera have had a long and complex history and passed from the Drassidae (Simon, 1878), elevated to the Zoropsidae (Bertkau, 1882; Simon, 1892), synonymised with the Zoridae (part, Lehtinen, 1967, part), Ctenidae or Miturgidae (part, Lehtinen, 1967 & Griswold, 1993), some transferred to the Zoroeratidae (Griswold et al., 1999, part) and now back to the Zoropsidae (Levy, 1990; Griswold, 1993). Restoration of the Zoropsidae (Levy, 1990) was given phylogenetic support in an analysis of lycosoid families (Griswold, 1993). The Stiphidiidae has been excluded from the Lycosoidea (Griswold et al., 1999). Inclusion of the Psechridae & Oxyopidae within the Lycosoidea (Homann, 1971 & Griswold, 1993) has resisted falsification using partial mitochondrial 12S and 16S ribosomal DNA sequences (Fang et al., 2000); however, the sample set was limited and yielded little data to contribute further to this study. Griswold (2002) revised *Raecins* (Zoroeratidae) and Bosselaers (2002) added *Akamasia* and made a cladistic analysis of the Zoropsidae. Silva (2003) examined higher level relationships of etenoids, including the Zoropsidae, and the preferred cladogram represented dramatic changes in family affinities. However, apart from minor transfers of etenids, most of the significant higher level changes in the cladogram were not implemented.

The transfer of genera from Simon's Zoropsidae to diverse families bears brief explanation. Lehtinen's (1967) transfer of *Zoropsis* to the Zoridae was spurious, as testified to by his inclusion of the 3-clawed *Zoica*, later (Lehtinen & Hippa, 1979) transferred to the Lycosidae. The relationships of *Acanthoctenus* and the Zoroeratidae, on the other hand, were well supported by Griswold (1993) but the nomenclatural implications accepted only by Griswold et al. (1999). However, throughout all, the absence of a explicit concept of the Miturgidae (cf. Lehtinen, 1967) has been the core of the problem. Hence, it was to that family that the species here described were assigned by Davies (1976, 1977).

The quest for miturgid monophyly was partially addressed by the removal of problematical

Australian taxa. Raven et al. (2001) plaeed the erstwhile miturgid *Amauropelma* Raven & Stumkat, 2001 into the Ctenidae and Raven & Stumkat (2003) separated the Australian miturgid *Mituliodon* Raven & Stumkat, 2003 from the New Zealand zoropsid *Uliodon* L. Koeh, 1873. However, the group was still paraphyletie; unplaeed miturgoids (Davies, 1976, 1977) more elosely resembled *Zoropsis* than *Miturga*. Unlike *Miturga* itself, the miturgoids had strong elaw tufts, strong paired spines ventrally on the anterior legs and have little or no leg seopula. Nevertheless, it was elear that the spiders belonged to the Lyeosoidea along with the Miturgidae but not elose to them. Similarly, the Australian *Hnntia* Gray & Thompson, 2001 (and *Bengalla* Gray & Thompson, 2001) was deseribed and left unplaeed within the Lyeosoidea. Resolution of the affinities of those miturgoids was only possible through a phylogenetie hypothesis using the Miturgidae, Ctenidae, Zoridae, Pisauridae, Lyeosidae and the Zoropsidae.

MATERIALS AND METHODS

Methods are similar to those used in Raven & Stumkat (2003) exeept as follows. Eye deseriptions are made from direetly above or in front and measurements are taken from above. Chelieeral dentition is given as the number of retromarginal teeth and promarginal teeth, e.g., r=4, p=3. Wherever possible, it was the left male palp that was drawn and seanned. Seanned material were either eritieal-point or air dried from aleohol-preserved material and then sputter-eoated with gold before examination in an Hitaehi S-530 seanning eleetron mieroseope, sometimes using a Robinson (T) baekseatter deteetor. Epigynes were photographed in aleohol and then either eleared in laetic acid and drawn or gold-eoated for examination with the seanning eleetron mieroseope. The four new genera here deseribed are somatieally similar; hence a full generie deseription is given only for *Megateg*, gen. nov. Charaeters eonsistent for the genus are generally deseribed only there and omitted from speeies deseriptions. *Spination*. This follows our previous method.

ABBREVIATIONS. ALE, anterior lateral eyes; ALS, anterior lateral spinnerets; AME, anterior median spinnerets; Cons. Pk, Conservation Park; e, embolus; ee, epigynal eleat; l, paraembolie lamellae; ma, median apophysis; MEQ, mid-eastern Queensland; NEQ, northeast Queensland; NP, National Park; PLE, posterior lateral eyes; PLS, posterior lateral spinnerets; PMS, posterior median spinnerets; pv, proventral; RCH, retroeoxal hymen; RTA, retrolateral tibial apophysis;rv, retroventral; SEQ, southeast Queensland; SF, State Forest.

FIG. 1. *Kilyana hendersoni*, sp. nov., ♀, habitus.

Institutions. BMNH, Natural History Museum, London; CBB, eolleetion B. Baehr; MNHP, Musée National d'Histoire Naturelle, Paris; NHMW, Naturhistorisehes Museum, Wien, Austria; NMSA, Natal Museum, South Afriea; OMD, Otago Museum, Dunedin; QM, Queensland Museum, Brisbane; WAM, Western Australian Museum, Perth; SAM, South Australian Museum, Adelaide; AMS, Australian Museum, Sydney.

TERMINOLOGY. *Basodorsal process, male palpal cymbium* (Fig. 23B). In *Krukt*, the base of the eymbium is basally eonstrieted into a low ridge or eonieal proeess.

Epigynal cleats. Raised half-domed ridges posteriorly on the epigyne (Figs 12E, 32C); poekets of Griswold (1993). The funetion is unelear.

Epigynal plug. Griswold (pers. eomm.) suggested that an epigynal plug may be a useful eharaeter in defining a subgroup within the Lycosoidea. It was reported in the etenid *Amauropelma* (Raven, Stumkat, & Gray, 2001) and is here reported in *Uliodon*, *Krukt*, *Megateg* and *Kilyana*, as well as in an undeseribed Australian tengellid. Suhm et al. (1996), however, reported the plug, whieh they showed was generated by the bulbus gland in the male palpal bulb, to be in 14 entelcgyne families of Orbieulariae, the dionyeines, Amaurobioidea and Lyeosoidea although they did not eonsider all of its oeeurrenees homologous.

Paracymbial discontinuity or flange, male palp (Fig. 18A). In some male lyeosoids, the

retrolateral margin of the cymbium has a basal groove which extends for part or much of the basal edge. The smooth, uniformly curving rate of the retrolateral cymbium margin is disrupted by a distal widening thought to be the precursor, or the vestige, of a groove. That widening is termed the paracymbial discontinuity or flange.

Epigynal scape. Median septum of the epigyne which may form an uncut ridge but is not movable as in, for example, the linyphiid *Laperousea* or the araneid *Eriophora*.

NON-AUSTRALIAN MATERIAL.

Ctenidae – *Acanthoctenus ganjoni* Simon, 1906: MNHN; *Asthenoctenus borelli* Simon, 1897: MNHN; *Ctenus gigas* Franganillo, 1931: BMNH; *Ctenus malvernensis* Petrunkevitch, 1911: MNHN; *Cupiennius* sp.: BMNH; *Phoneutria* sp.: BMNH; *Vulsor* sp.: MNHN.

Miturgidae – *Zealoctenus cardoensis* Forster & Wilton, 1973 type: OMD.

Psechridae – *Psechrus sinensis* Berland & Berland, 1914, types: MNHN.

Tengellidae – *Lanricius hemiclocinus* Simon, 1888: MNHN; *Tengella albolineata* (F.O.P.-Cambridge, 1902): BMNH; *Titiotus californicus* Simon, 1897: MNHN.

Zoridae – *Zora spinimana* (Sundevall, 1833) QM.

Zoropsidae (*formerly Miturgidae) – *Devendra seriatus** (Simon, 1898): MF, MNHN; *Griswoldia disparile** (Lawrence, 1942): NMSA 4561; *Griswoldia punctata** (Lawrence, 1942): NMSA 18782, NM4311, NMSA 14380; *Griswoldia robusta** (Simon, 1898): MNHN; *Griswoldia urbensensis** (Lawrence, 1942): NMSA 3369; *Phanotea peringueyi** Simon, 1896: MNHN.

Zoroeratinae – *Camptostichomma manicatum* Karsch, 1891: MNHN; *Udiba dahli* Simon, 1903: BMNH; *U. madagascariensis* (Vinson, 1863): MNHN; *Zoroceratcs badius* Simon, 1895: MNHN; *Z. fuscus* Simon, 1888: BMNH; *Uliodon albopunctatus* L. Koch, 1873, type F: NHMW; *Uliodon cervinus* L. Koch, 1873, type F: NHMW; *Uliodon frenatus* (L. Koch, 1873): BMNH, MNHN; *Zoropsis media* Simon, 1878: BMNH; *Z. spinimana* (Dufour, 1820): MNHN, CBB.

CLADISTICS. *Data*. The Hennig86 data set presented by Griswold (1993) were used as the base matrix.

ANALYSES. The analysis of Griswold (1993) was duplicated to ensure a consistent starting point. In those data, five genera were represented by more than one species. However, as we proposed to add a number of genera represented monotypically in the cladogram, the potential (in)stability was of interest. To see how those taxa in Griswold's original matrix would 'behave' when represented monotypically, six taxa (*Devendra seriatum*, *Griswoldia urbensensis*, *Phanotea* sp. 1, *Phanotea* sp. 2, *Udiba dahli* and *Zoropsis* 'France') were removed and the analysis repeated. Optimally, taxa should be added to trees to make the analysis more 'total'; only one tree resulted from the 26 taxon analysis. It was similar to the initial tree (used by Griswold, 1993) but *Campostichomma* was widely separated from the other zoroeratids as the sister group to *Miturgidon* plus the Pisauridae-Lycosidae clade. The change indicated the instability of the data set when genera were represented monotypically.

The dataset of Griswold (1993) was then manually converted and imported into DELTA 1.04 (Dallwitz et. al., 1998); that allowed easier scoring and checking of characters. (Neither the data set nor manuscript of Silva (2003) were known at that time.) We then used the Nexus Data Editor (Page, 1998) to translate the data from DELTA back to Hennig86 format; however, that resulted in unpredicted data corruption. Instead, we used DELTA 1.04 and the Action Set 'tohen' (translate DELTA into Hennig86 format). The full multispecies original data set was used. Although Griswold et al. (1999) rescinded the inclusion of *Stiphidion* in the Lycosoidea because it was found to belong to another group, it was kept in this data set. To those data, we added species representing several genera: *Kilyana hendersoni*, sp. nov., *Huntia deepensis* Gray & Thompson, 2001, *Krukt piligyna*, sp. nov., *Megateg elegans*, sp. nov., *Birrana bulburin*, sp. nov., *Amauropelma trueloves* Raven & Stumkat, 2001, *Bengalla* sp., a new Australian tengellid; *Miturga lineata* Thorell, 1878, *Diaprograpta* sp., both in the Miturgidae, and the zorid *Argoctenus* sp. 'Q4'. Several characters were added and some characters used by Griswold (1993, e.g., cribellum, tarsal organ, embolus tip) were modified to accommodate the states in the added taxa, some were deleted (e.g., calamistrum); and in several, the sequence of states (in unordered characters) was changed (for cosmetic reasons).

At the outset, *Devendra*, *Griswoldia*, *Huntia* and *Phanotea* were listed in the Miturgidae (Platnick, 2003).

The matrix is presented as Appendix 1.

All characters were treated as unordered and equally weighted. Although the use of unordered characters is notionally an acceptance of the Principle of Indifference (Wilkinson, 1992), most characters used here could not be ordered although some are easily polarised.

NONA 2.0 (Goloboff, 1997) was used through Winclada 1.00.08 (Nixon, 2002) with the settings mult*1000, with 1000 replications and 25 starting

trees per replications. Non-homoplasious synapomorphies are represented by black squares and homoplasious synapomorphies by black dots.

CHARACTERS. (Those without comment are unchanged from Griswold, 1993).

0. Male tibial crack: *0*, absent; *1*, present. A fine crack appears on the leg tibiae of male lycosoids (Fig. 22F). It is very close to the base, often a ventral or lateral spine occurs on its distal side. The crack is evident with a dissecting microscope but is often more readily seen on the retrolateral side. Griswold (1991) identifed this character in the Lycosoidea. Griswold (1993) found the tibial crack to be so homoplasious in the cladogram and accepted that to constrain it to a single apomorphy would have resulted in 7 extra steps.

1. Cymbium dorsally with dense scopulate patch: *0*, absent or not dense scopula; *1*, present. This character has been modified to refer only to a dense ovoid area of scopula forming a more of less flattened outer surface. It is presumbably what Bosselaers (2002) termed a bristle pad but it is not bristles (see Fig. 33E,F). A number of taxa have modified hairs on the cymbium including *Argoctenus* and Psechridae. The hairs on the upper legs in lycosoids are densely grouped, thickened and brush-like for part of their length and bluntly tipped. However, hairs dorsally on the cymbium of the psechrids (*Fecenia* and *Psechrus*) are bristle-like and not forming a flattened outer pad. Hence, the lycosoid cymbial pad is considered another synapomorphy of the group excluding *Zorocrates*, *Devendra*, and *Campostichomma* and with a secondary loss in one species of *Griswoldia* (*G. robusta*).

2. Apical cymbium : *0*, elongate or clearly conical; *1*, truncate or little longer than bulb. Despite figuring a wide diversity of cymbial shapes, Griswold (1993) coded very few. Our research indicates that the cymbium is not only rich in characters but that the characters are highly consistent and hence informative. Taxa described all have a deep (in dorsoventral plane) cymbium with some modification of the tip. In *Zoropsis* (Levy, 1990), *Krukt* and *Megateg*, the cymbium is deep, apically truncate and indented. In *Kilyana*, it is apically coniform but twisted (Fig. 41A). In *Megateg* (Fig. 9A) and *Zoropsis* (Levy, 1990), the margin is broadly rounded and to a greater or lesser extent the cymbium prolaterally extends below the bulb. The plesiomorphic condition is considered that found in *Tengella* in which the apical cymbium is long and conical.

3. Male abdominal shield : *0*, absent; *1*, present. In all four genera here described, *Zoropsis*, and the New Zealand *Uliodon*, a pair of transverse slit-like 'sigilla' are evident on the anterior face of the abdomen just above the pedicel (Fig. 3A,B). They are present in both males and females but are more evident in males as they are the foci of an oval biconcave scute or sclerotisation. It is associated with 4 large paired sigilla dorsally on the abdomen. The character is absent in the miturgids, *Miturga*, *Mituliodon tarantulina* (L. Koch), *Diaprograpta*, and all known Australian Corinnidae, Clubionidae, Cyclocteneidae, Pisauridae, Ctenidae, and Zoridae. A similar condition is here reported in *Argyroneta* (Cybaeidae) and the philodromid *Thanatus formicinus* (Clerck, 1757). In these genera, four sigilla are evident in the semicircle dorsal of the pedicel; however, the 'sigilla' are small and oval but males have no associated sclerotisation. Both males and females (CBB) of *Coelotes inermis* (L. Koch, 1855) have small rectangular sigilla in a similar position but the surrounding area is not sclerotised and is not sexually dimorphic. On dissection of *Megateg*, no muscles were evident internally at that point and hence the term 'sigilla' is incorrect. The shield/scute appears simply to have two eye-like sockets.

However, an additional feature is associated with the sigilla in male zoropsids. The sigilloid scars are present in both males and females but only in males is there sufficient sclerotisation to be deemed a scute. This sclerotisation is considered autapomorphic and on the suggestion of Griswold (in litt.) is termed a shield.

Dorsal sigilla are the attachment sites of dorso-ventral muscles passing vertically through the abdomen. They occur in most spiders but are not universal (Marples, 1968). They are plesiomorphically present and large in mygalomorphs and Mesothelae (Millot, 1933, 1936), and hypochiloids (Marples, 1968). None of the sigilla identified by Millot or Marples have muscle attachments on the abdomen wall so low and close to the pedicel as here noted. Millot (1933, 1936) and Marples (1968) showed only an infracardiac ligament attaching to the posterior wall of the heart at a position near that of the centre of the anterior abdominal plates.

In most spiders, the dorsal sigilla are often not readily evident and are hence quite small. Marples (1968) noted that, in arancomorphs, the number of dorso-ventral muscles varies from 4 pairs to none. Also, dorso-ventral muscles are not always lost in the same sequence. The distinction here is that the sigilloid scars are enlarged and quite evident and in that state they are also evident anteriorly on the abdomen.

4. Male palpal tibia with retrolateral apophysis: *0*, present; *1*, absent (*Psechrus* & Lycosidae). Subdorsal tibial apophysis (Fig. 34D). The presence of a retrolateral tibial apophysis (RTA) on the palp of males took on special significance when Coddington & Levi (1991) drew attention to it following Griswold (1990) and elaborated by Griswold (1993). However, distinction was not made in the position of the tibial apophysis. Clearly, the dorsal apophysis of the Nicodamidae (Harvey, 1995) presents even a mere definitional problem: a dorsal retrolateral tibial apophysis. In most groups with a tibial apophysis, the base of the apophysis is clearly evident and lateral when viewed ventrally. However, in a number of other groups, notably *Zoropsis*, the New Zealand *Uliodon*, and some species of genera described here, the tibial apophysis is commonly set so high on the tibia that from ventral view the base is not evident. That condition is considered significant but not here fully surveyed.

5. Male palpal tibia with retroapical cuticle unsclerotised: *0*, absent; *1*, present (Trechaleidae).

6. Male palpal tibia with ventral apophysis in addition to retrolateral: *0*, absent; *1*, present in *Uduba*, *Campostichomma*, *Raecius*, *Zorodictyna*, Australian tengellid, *Bengalla*, *Stiphidion*.

7. Cymbial dorsobasal projection: *0*, absent; *1*, present in *Zorodictyna*, *Huntia*, *Krukt*, *Ctenus*. Initially, this character appears quite informative but within the Australian zoropsids here revised it is present only in *Krukt* and absent in its unequivocal sister genus, *Megoteg*.

8. Subtegulum/tegulum interlocking lobes: *0*, present; *1*, absent. Tegular-subtegular interlocking lobes were first reported (Griswold, 1993) in the Lycosoidea. In *Megateg elegans* and *M. bartholomai*, prolaterally the subtegulum has small basal lobe which sits inside the basal extension of the embolus (Fig. 3C,D) and is here presumed to qualify at least functionally as an interlocking lobe. However, Platnick (1999) noted that some species of the liocranid *Agroeca* Westring have a form of the lobe also involving part of the embolus but being much more anterior than in lycosoids we considered it was not homologous.

9. Separate tegular conductor: *0*, present; *1*, absent in *Krukt*, *Megateg*, *Birrana*, *Kilyana*, *Uduba* and *Trechalea*. Griswold (1993) considered a conductor was absent if 'No part of the palpal bulb serves to guide or protect [the] embolus'. Bosselaers (2002), on the other hand, considered that a hyaline or sclerotised appendage, immovably attached to the tegulum and facing the embolus tip is considered to be a 'conductor'. Apart from embolar support being provided by the groove formed by the ventral cymbial tip, conduction for the embolus in genera here revised is (presumably) provided from two different sources. In *Megateg ramboldi* and *M. elegans*, a long tegular grooved process (albeit shallow) arises from the base of the embolus but extends well past the embolus tip. These appear as tegular lobes and only doubtfully serve any guiding function for the embolus. Equally, in *Kilyana hendersoni*, a long fimbriate paraembolic guide arises from the base of the embolus and parallels it only for the basal half but the embolus is very long and conduction at the tip seems only possible by the cymbial groove. The second kind of conduction lies in the grooved distal ridge of the median apophysis of *Kilyana ingrami* (Fig. 49C,D). Here, we take the concept implicit in Griswold and adapted by Bosselaers. In the Australian zoropsids, save for *Huntia*, a tegular process (but not the median apophysis) arising near the embolus tip and serving a conduction function is absent. That transfer of the conduction function is considered a synapomorphy of the Australian zoropsids, save for *Huntia*. Characters coding the different kinds of conductor used by Griswold are not used here as the establishment of homology is assumption rich. That problem also arises in the coding of the median apophysis which is nonetheless accepted here.

10. Median apophysis : *0*, present; *1*, absent only in *Psechrus*, *Stiphidion*, *Uliodon*.

11. Median apophysis, position on tegulum: *0*, median, insertion near middle of tegulum; *1*, retrobasal, insertion near proximal margin of tegulum only in two *Phanotea* species and *Amauropelma*.

12. Median apophysis, shape: *0*, convex, club- or hook-shaped, narrow, convex on all surfaces or with concavities forming only narrow grooves; *1*, cup-shaped, prolateral surface a deep oval concavity that is closed distally, retrolateral surface arched, convex (*Devendra*, *Camposticholomma*, *Raecius*, *Huntia*, *Griswoldia*, *Phanotea* and the three ctenid genera).

13. Concave Median apophysis: *0*, simple (*Devendra*, *Camposticholomma*, *Raecius*, *Acanthoctenus*, *Amauropelma*); *1*, bimarginate, concavity with inner and outer rims, these separated at apex of apophysis (*Huntia*, *Griswoldia*, *Phanotea*, *Phoneutria*, *Ctenus*).

14. Convex Median apophysis: *0*, hooked or bent distally; *1*, large, swollen, with 2 apical lobes, bilobate (*Trechalea*, *Rhoicinus*, *Miturga*, *Diaprograpta*); *2*, triangular in cross section, simple (*Uduba*, *Bengalla*, *Lycosidae*).

15. Hooked Median apophysis: *0*, simple; *1*, bifid (*Zoropsis*, *Kilyana*, *Megateg*, *Krukt*, *Birrana*, *Miturga*, *Diaprograpta*).

16. Median apophysis, angle: *0*, longitudinal; *1*, transverse (*Uduba*, Lycosidae).

17. Tegulum: *0*, oval (most genera); *1*, bifid, divided into separate proapical and retroapical processes (*Uduba*); *2*, notched probasally so that subtegulum is visible in ventral view (Trechaleidae, *Miturga*, Lycosidae).

18. Distal tegular process (DTP): *0*, absent; *1*, present (Lycosidae, Pisauridae, Trechaleidae).

19. Tegular lobe or process (sclerotised tegular projection, STP) arising near embolus base: *0*, absent; *1*, present (*Fecenia*, *Zorocrates*, *Raecius*, *Birrana*, *Megateg*, *Pisaura*, *Ctenus*, *Miturga*).

20. Paracmbolic vane or lamina, i.e. median membranous region of tegulum (between base of median apophysis and embolus): *0*, simple, convex; *1*, with vane (projection, MTP) arising near embolus base (*Takeoa*, *Zoropsis*, *Birrana*, *Krukt*, *Megateg*, *Uliodon*, *Zorodictyna*). In *Megateg*, typically, there are four membranous laminae on the bulb, three are universal, one is present in all but one species. In addition, consistently present distally on the embolus is a lamina which is also found in *Zoropsis lutea* (Thorell, 1875) (but not in *Z. media* Simon or *Z. rufipes* (Lucas)) that Levy (1990) named a translucent embolic lamina (see Fig. 19A,B). Griswold (1995) reported the character (no. 6 in his analysis) in three species of *Phanotea* (*P. cavata*, *P. xhosa*, *P. digitata*) as one of the synapomorphies of the group. In *Megateg*, it extends back from the embolus tip folds basally and then makes a small semicircular lamina dorsally, i.e., between the embolus and cymbium. The second is a large rounded wing-like lamina extending almost completely for the retrobasal edge of the median apophysis and sometimes curling ventrally around the median apophysis. Such a lamina has not been previously noted in the Lycosoidea (MTP of Griswold, 1993). The third is a large lamina arising entally adjacent to the base of the embolus and extending distally between the embolus and median apophysis; it varies in shape from a broad rounded wing to almost a triangular spike. It is the membranous tegular process (P) of Levy (1990). Griswold (1993) also reported it *Zorodictyna* and *Takeoa*. The fourth, almost global, lamina is small, rounded and triangular and arises entally of the base of the median apophysis. It is similar in size, shape and position to the P of Levy (1990).

Of the Australian zoropsids, only *Huntia* Gray & Thompson, 2001 has a conductor in the sense of a lamina that arises from the tegulum near the embolus tip. In that at least *Huntia* is allied to *Devendra* and *Zorodictyna*. A conductor is present in New Zealand Uliodon but it lacks a sclerotised median apophysis.

21. Embolus base: *0*, fixed, with sclerotised attachment to main body of tegulum; *1*, flexibly attached to tegulum by membranous cuticle (*Mituliodon*, *Diaprograpta*, *Bengalla*, Lycosidae, Pisauridae, Trechaleidae, *Uduba*, *Kilyana*, *Huntia*).

22. Embolus arising from basal lobe (EL): *0*, absent, with embolus origin gradually tapering from tegular surface; *1*, present with embolus base bulbous or lobate, whether or not firmly or flexibly attached to tegulum (*Mituliodon*, *Miturga*, *Diaprograpta*, *Argoctenus*, *Bengalla*, Lycosidae, Pisauridae, Trechaleidae, *Uduba*, *Kilyana*, *Zorocrates*, *Camposticholomma*).

23. Basal lobe of embolus with process (ELP): *0*, present, with lobe or protuberance; *1*, absent, basal lobe smoothly curved (*Mituliodon*, *Miturga*, *Sossipus*, *Bengalla*, *Argoctenus*).

24. Embolus, direction of curve (left bulb, ventral view): *0*, clockwise; *1*, counter-clockwise (Lycosidae, Pisauridae, Trechaleidae, *Uduba*).

25. Embolus : *0*, stout, tapering to apex, convex or flattened (*Tengella*, *Devendra*, *Raecius*, *Zorodictyna*, *Huntia*, *Amauropelma*, *Griswoldia*, *Phoneutria*, *Austrotengella*, *Uliodon*); *1*, slender, curved spine (most genera); *2*, broad, concave, apex divided into dorsal (ED) and ventral (EV) lobes (*Takeoa*, *Phanotea* (part), *Ctenus*); *3*, a broad thin flange (*Zoropsis* (part), *Phanotea* (part); *4*, thin spine and apical recurved in keel (*Megateg*, some *Zoropsis*).

26. Epigyne, configuration: *0*, clearly divided by longitudinal epigynal fold (EPF) into median sector (MS) and paired lateral lobes (LL); *1*, MS and LL fused, not divided longitudinally into 3 parts.

27. Lateral lobes, shape: *0*, convex, unmodified; *1*, concavity or pocket; *2*, tooth.
28. Lateral lobes teeth, kind: *0*, short, median (Ctenidae); *1*, long median (some *Phanotea*); *2*, on posterior margin (*Rhoicinus*).
29. Median sector (MS) of epigynum: *0*, median lobe (ML); swollen with a lobe or protuberance; *1*, unmodified, flat or gently convex.
30. Median lobe (form, convex MS): *0*, scape, projecting ventrad with abrupt posterior margin; *1*, a swollen lobe extending to posterior margin (Ctenidae); *2*, median longitudinal swellings.
31. ML scape (kind): *0*, simple, broadly attached anteriorly (*Tengella*); *1*, an erectile scape, narrowly attached anteriorly (*Zoropsis*).
32. Posterior divot or fossa on scape: *0*, present; *1*, absent.
33. Shape of copulatory duct (CD): *0*, short, broad, length less than vulva (*Zorodictyna*); *1*, longer than or equal to vulva; *2*, very long, length greater than vulva and looped back on itself (*Uduba*).
34. Inner margin of epigynal groove (EG): *0*, absent; not apparent on dorsal surface of epigynal plate; *1*, inner bulge separate from vulva; *2*, broad bulge, leading to copulatory duct (CD); *3*, narrow, approximately parallel to copulatory duct extending posteriorly to near fertilisation duct (FD).
35. Head of spermatheca (that part with pores): *0*, small, narrow, smaller than BS (*Mituliodon*); *1*, large spherical, larger than BS; *2*, absent, no porose area (*Uduba*).
36. Base of spermatheca chambered (BS, area just before FD, internal structure): *0*, simple, spherical or tubular; *1*, chambered.
37. Base of spermatheca with pronounced lobe (BS, external shape): *0*, simple (*Raecius*); *1*, pronounced lobe; *2*, long, sinuate (*Mituliodon*).
38. Fertilisation duct (FD, position): *0*, posterior; *1*, median.
39. Posterior eye row shape: *0*, nearly straight, OAL:OQL less than 1.2; *1*, recurved, OAL:OQL more than 1.2.
40. ALE and PME in line: *0*, no; *1*, yes (Ctenidae).
41. PLE behind PME, ratio of PER to OQP less than 1.6 (Lycosidae): *0*, no; *1*, yes.
42. ALE relative to AME: *0*, about same size; *1*, clearly smaller; *2*, clearly bigger. Large lateral eyes (Fig. 5). In most groups with recurved eye rows, the smaller eyes are either the laterals (e.g., Ctenidae, Cyclocteniidae, Zoridae) and/or the front row (e.g., Lycosidae, Pisauridae), or all eyes are of a similar size (e.g., Miturgidae, Sparassidae). In the Zoropsidae, the synapomorphic and common condition (all Australian zoropsid genera here included, except *Kilyana* where it is variable) is that the anterior lateral eyes (at least) are clearly larger than the anterior median eyes. The direction the eyes 'look' does not seem, as initially thought, to convey additional information.
43. Tapetum: *0*, canoe-shaped; *1*, grate-shaped; *2*, diffuse, blotchy. Although the character is taken from Griswold (1993), we were unable to confirm that *Stiphidion* has a grate-shaped tapetum. On the other hand, we did note that, contrary to Homann (1971), at least one zorid genus *Argoctenus* does have a grate-shaped tapetum.
44. Ratio of male tibia I to carapace width: *0*, less than 2.7; *1*, more than 3.
45. Tarsus, dorsal trichobothria, rows: *0*, 2 or 3 irregular rows; *1*, 1 row.
46. Dense claw tufts obscuring pretarsus: *0*, absent; *1*, present. Claw tufts. Here taken to be clusters of finely fimbriate hairs with broadly rounded or flared tips arising from a separate pad (see Raven, 1986, 1994) ectally beside each claw (Figs 22A-E, 40A,B). The hairs usually enlarge distally. Hence, the extended scopula of, for example, *Miturga lineata* Thorell, do not qualify.
47. Diamond-shaped hair cluster below tufts (Fig. 40) : *0*, absent; *1*, present. In Zoropsinae, below the claw tufts, an additional cluster of highly fimbriate hairs occurs in a triangular area on the distal ventral tarsi centred around the apex of the tarsus. The hairs are optically darker and apically taper to smooth elongate filaments (Figs 22C, 40D). The wider distribution of these filamentous scopuliform hairs is not known.
48. Claws on leg I, number: *0*, 3; *1*, 2. In at least one genus (considered to be a tengellid), the number of claws on the first and fourth legs differ. The more apomorphic condition (2 claws) is present on leg I and the plesiomorphic condition (3 claws) is present on the leg IV. So we have modified the character from Griswold (1993) to reflect the more apomorphic state. Raven (1985) discussed anterior-posterior leg differences in the Mygalomorphae.
49. Scopula on leg I: *0*, absent; *1*, present.
50. Tarsal organ, form: *0*, aperture simple, oval to round; *1*, keyhole-shaped; *2*, stellate, margin forming several inward-pointing lobes; *3*, a long elevated rod with apical aperture. Tarsal rod (Figs 3F, 38B). A tarsal rod set at about 40-50° is present from about the mid-point of the pedal tarsi to just basal of the mid-point in *Megateg*, *Krukt* and *Birrana*. In some cases, the rod is present only on one tarsus (e.g., III) but is presumably broken off on other legs as its presence is indicated by a large, ovoid, pallid region which is the base. The rod is set at about 70-80° to the cuticle and under hydraulic control. The rod is not present on the palpal tarsi of either males or females nor is a tarsal organ also evident. Unlike *Amauropelma* (see Raven, Stumkat & Gray, 2001), the tarsal rod or organ of zoropsids is the same relative position on all leg tarsi. In *Krukt* and *Megateg*, the rod is very long with the aperture on the undersurface of the tip and at the base of a spine-like apex (Fig. 3F), whereas in *Birrana* (Fig. 38B) it is much shorter with the aperture terminally on truncated tip.
51. Trichobothrial base, texture of hood: *0*, transversely striate; *1*, with fine longitudinal striations to smooth.

Spination. Both Griswold (1993) and Bosselaers (2002) used spination of both males and females to a different extent in their data sets. Our approach has been to identify spines in unusual positions or configurations. Griswold (1993) scored the number of spine pairs ventrally on tibae I, II. Bosselaers (2002) divided that into the scores for males and females and added a number of characters based on spines, continuing the separation of males and females without noting the almost complete correlation. Neither author noted the significance of the robustness of the tibial spines but only the number of pairs. Hence, four pairs of weak spines appear no different in their data matrices to the strong spines seen here (Fig. 34C). Equally, the spines of *Megateg* (and others) are on decidely raised bases; the condition is most evident in females but weaker in males. The stronger paired spines are more often found in hunting spiders but can be found in groups (e.g., *Clubiona*, pers. obs.) which are otherwise only weakly spined. Significant among those strong spines is the proventral femoral spine (character 52). However, more common in the hunting spiders is the reduction, often to total absence, in dorsal and lateral spines on tibiae I, II in females. Hence, the presence of spines in these positions may yet prove quite informative. Equally, as we here found, males of females with reduced spines themselves may have a higher dorsal and lateral spine complement on legs I, II and as such may

represent the plesiomorphic condition of the higher group (see Raven, 1985, on biserial dentition of male Barychelidae).

In all four new genera herein, tibiae and metatarsi I and II have strong paired spines ventrolaterally (Fig. 34C). On the tibiae, the spines are in 4 pairs from the base to subdistal and all also have an additional unpaired distal spine proventrally. The metatarsi consistently have 3 pairs of strong spines. In *Uliodon*, the spination is the same but the extra anterodistal spine is absent on the tibiae.

All four Australian zoropsid genera described here show similar patterns of leg spination and useful common features can be seen. Females: a strong proventral spine on femora I (character 52); as well as prolaterally, dorsally and retrolaterally; spines only retrolaterally on patellae III, IV; spination of legs I and II (Fig. 34C) varies only on femora with only ventral paired spines on tibiae (pv5rv4) and metatarsi (v2.2.2). In males, spines are also present prolaterally and retrolaterally on tibiae and metatarsi I and II and one retrolateral spine occurs on all patellae.

Proximobasal ventral tibial spine. Paired ventral spines on tibia I, II typically do not occupy the full length of the tibia. In the Australian Zoropsidae, the spine complement lacks the distal pair and the most basal pair are set on the tibia basal of the area defined by the dorsal extent of patella (Figs 33A, 34B). The most basal spine ventrally on the tibia is inside that area also in *Zoropsis spinimana*, the miturgid *'Odo' gracilis*, the New Zealand *Uliodon*, as well as in new genera here described and in *Zora spinimana*.

As part of our as yet unpublished work on Australian cursorial spider families we found, in most Australian miturgids, the spination on tibiae I, II is 3 weak pairs ventrally. In some, up to 4 spines may occur in a transverse line basally. Only 2 pairs of weak spines are present ventrally on the metatarsi. The same is true is the Australian zorids with two exceptions: on tibiae I, II, in *Elassoctenus*, from 5-7 pairs of spines and in *Hestimodema* only 2 pairs of spines may be present. However, in all cases, in zorids and miturgids only two pairs of spines are present on metatarsi I, II (see Raven et al., 2002). Hence, the condition used here and also reported by Bosselaers (2002) of the metatarsi I, II having 3-5 strong paired spines is unusual and considered a synapomorphy within the higher in-group.

52. Femur I with proventral spines : *0*, absent in *Tengella*, Psechridae, Lycosidae, Pisauridae, Miturgidae s.strict., Ctenidae except *Amauropelma*, *Stiphidion*, *Senoculus*, *Tapillinus*. Zoridae; *1*, widely present in higher in-group but also present in the zorid genus *Hestimodema*.the amaurobiid *Dardurus*. On the lower half of femur I, basally and prolaterally, is a distinct enlarged spine in the distal fifth. A prolateral spine is also present above it (Fig. 33D): the proventral spine is distal to it and in a line ventral to that. In *Megateg*, *Krukt*, *Zoropsis*, *Uliodon* and *Kilyana*, the spine is present only on femur I. In females, the spine is noticeably enlarged and on a low mound, even more so than the strong paired spines ventrally on tibia I, II. That condition is also present in *Griswoldia*.

53. Female tibia I, lateral spines: *0*, present; *1*, absent. Within the higher in-group, present only in *Takeoa*, *Zoropsis*, *Huntia* and *Phanotea peringueyensis*.

54. Spines on tibia I, female, on raised bases (Fig. 34C): *0*, absent; *1*, present through much of the higher in-group but not in *Phanotea*, at least. The distinction of this character is that the paired ventral spines in females are large and on raised bases. In other groups with numerous paired spines on the tibia (e.g., Zoridae), the spine bases are like other spines whereas in the in-group, the spine bases are enlarged.

55. Pairs of ventral spines on tibia I of both sexes: *0*, 4; *1*, 4 with extra anteroventral just behind apical pair; *2*, 5; *3*, 7 or more; *4*, 3; *5*, 6 pairs.

56. Metatarsi I, II, no. of ventral spine pairs: *0*, 2 or weak; *1*, 3 or more, strong.

57. Male tibia I, dorsal spines: *0*, absent; *1*, 1; *2*, 2 or more. Different states often occur within the same family.

58. Female tibia I, dorsal spines: *0*, absent; *1*, present only in *Dolomedes*, *Pisaura*, *Senoculus* and *Tapillinus*.

59. Male metatarsus I or II, lateroapical pairs of spines: *0*, absent; *1*, present.

60. Nursery web: *0*, no; *1*, yes only in *Dolomedes*, *Pisaura*.

61. Egg sac carried on spinnerets: *0*, no; *1*, yes in Lycosidae.

62. Retrocoxal hymen : *0*, present; *1*, absent only in *Senoculus*, *Dolomedes*, *Pisaura* and *Tapillinus*.

63. Female with dorsal spigots on PMS (Fig. 3E) : *0*, absent; *1*, present. In araneomorph spiders, spigots are present apically on the posterior median spinnerets in females. In some genera, notably the four here described, *Zoropsis*, and the New Zealand *Uliodon*, as well as an undescribed Australian 'tengellid', *Campostichonuma* and *Griswoldia*, the spigots form two lines along the dorsal surface (Figs 3E, 21C, 39C, 42E) similar to that in female Centrothelinae (Lamponidae, Platnick, 2000) but the spigots in the zoropsids are not so enlarged. The character is present in some species (e.g. *M. elegans*, *M. covacevichae*) of all genera described here but is not without homoplasy. It is also present in the sparianthine sparassid *Thelcticopis rubristernis* Strand, 1911 (pers. obs., RJR) but absent in *Neosparassus salacius* (L. Koch). The character is absent in the miturgids, *Miturga*, *Mituliodon tarantulina* (L. Koch), *Diaprograpta*, and all known Australian Corinnidae, Clubionidae, Cycloctenidae, Pisauridae, Ctenidae and Zoridae.

Associated with the dorsal spigots on the PMS are the spinnerets being set on a raised base. The condition is diagnostic of the sparassid subfamily Sparianthidinae (Simon, 1897). In alcohol, the spinnerets of these Australian zoropsids are often spread apart but almost invariably they can be readily seen to be on a raised common base (Fig. 32E). The condition is present in males and females herein described; however, a very wide survey has not been conducted. Their presence in the Sparianthidinae should be taken to test the hypothesis of non-relationship as at least *Thelcticopis* also has a cymbial scopula.

64. Cribellum colulus: *0*, cribellum present; *1*, wide fleshy colulus; *2*, colulus narrow.

65. Trochanter notches: *0*, deep; *1*, broad, very shallow; *2*, absent. Two descriptors are used: the relative width to depth which is greater on legs I, II than on III, IV (i.e. notch is shallower); the symmetry of the notch which can be lop-sided (deeper on trailing edge, Fig. 34A) on legs I, II.

RESULTS

Ten equally parsimonious trees were found (and shown with unsupported nodes collapsed): length 295, consistency index 0.30; retention index 0.66. The fast optimisation setting in

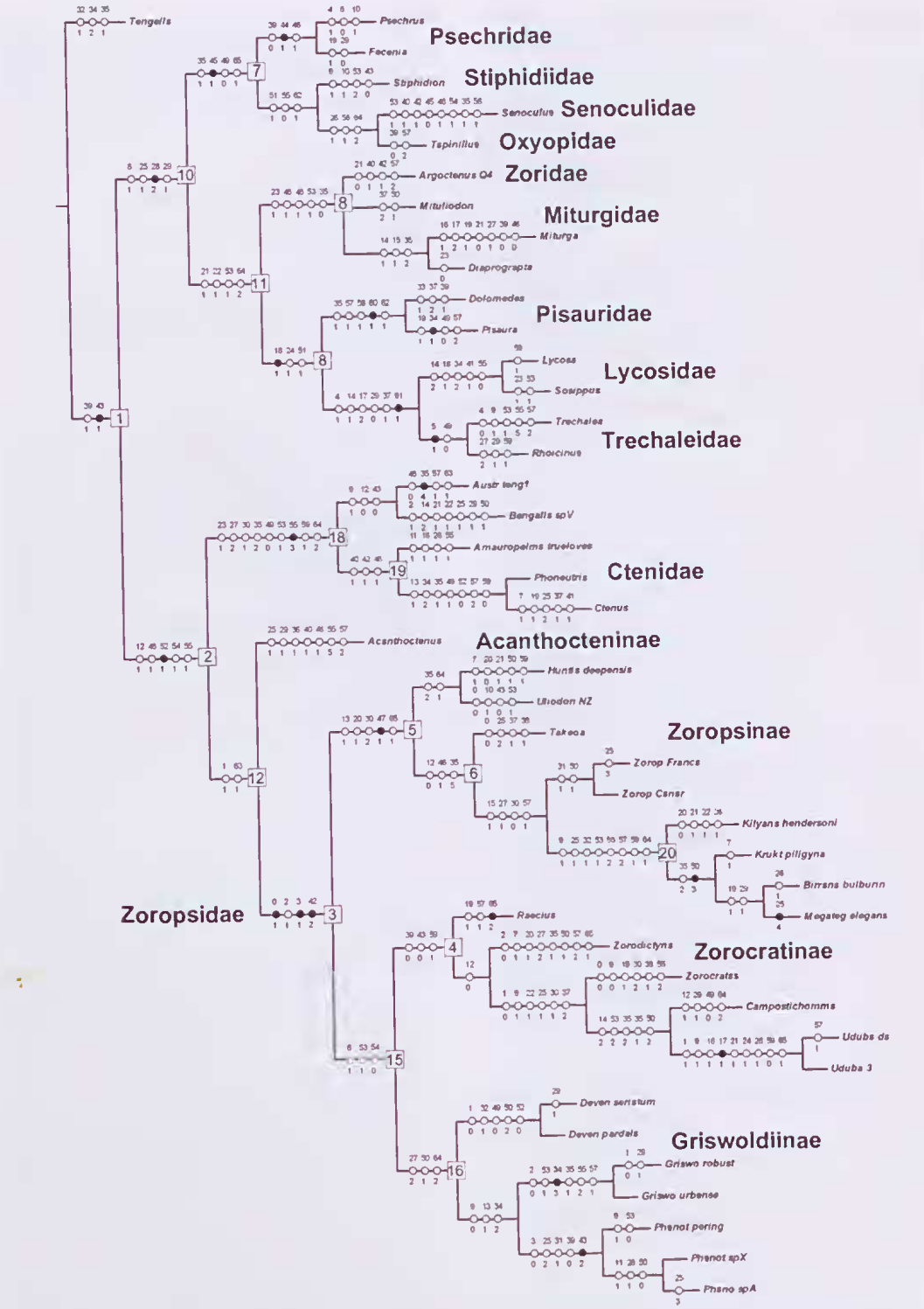

FIG. 2. Cladogram of Zoropsidae and other lycosoids. Non-homoplasious changes are marked with a black rectangle; homoplasious changes optimised towards tree's root are marked with a black circle.

Winelada was taken and a nelsen consensus tree produced (length 330, consistency index 0.27; retention index 0.60. (PAUP*4 was also used with the same resulting trees.)

In the consensus tree here found, within the 'higher lycosoids' (Griswold, 1993, fig. 87), Psechridae, Stiphidiidae, Senoculidae, Oxyopidae together form a clade, as do Pisauridae, Trechaleidae plus Lycosidae. The Miturgidae (sensu Raven & Stumkat, 2003) and Zoridae vary in position but remain basal. The higher etenids, *Phoneutria* and *Ctenus*, form a clade but the basal etenid, *Amauropelma*, groups lower on the cladogram. Consistently, Zoroeratidae form a clade and the Australian and New Zealand zoropsids form a clade with *Takeoa* and *Zoropsis*.

In stark contrast, Silva (2003)'s preferred tree showed *Tengella* remote from the other tengellids and sister genus of *Zorocrates* supported only by two highly homoplasious characters (oval PLE and 'loss' of the male tibial crack). Despite substantial support for controversial groupings (e.g., Eutichirinae remote from the Miturgidae as currently placed but clustering with the Clubionidae), Silva (2003) placed no significance on these groups and restricted her taxonomic changes to the Ctenidae which indeed was the proclaimed focus of the paper. (Many were characters clearly chosen because they were taken to be significant with the Ctenidae but had implications in her 'outgroup' taxa.) Notwithstanding the fact that characters used by Silva (2003) & Griswold (1993) overlap only by around 25%, that Silva (2003) included 6 families not used by Griswold (1993) and reduced the number of representative taxa in the Zoropsidae, Zoroctatidae and Griswoldiinae, it is hardly surprising that a radically different placement of the many groups resulted. As we noted above, the simple reduction of genera represented by multiple species in the data set of Griswold (1993) to single species representation resulted in the polyphyly of the Zorocratidae. Different data sets produce different cladograms even if one is inclusive within the other.

Further integration of Silva's (2003) characters into those used here is not possible because most states were not well documented or illustrated and in some cases were incorrectly coded, e.g. number of tarsal claws (character 110) does not allow for the different states on legs I and IV noted in character 111.

Choice of Trees. Of the 10 trees, 8 were strongly pectinated with single species or genera repetitively placed as the sister group of many taxa; the other two trees showed sister groups of similar sizes. Of those two, only one, the preferred tree, shows *Devendra* as monophyletic and at least the etenids *Amauropelma*, *Ctenus* and *Phoneutria* as monophyletic. That preferred tree (Fig. 2) also shows the Zoroeratidae (sensu Griswold, 1993, based on the most parsimonious tree with 'nelsen' consensus) as monophyletic and the Miturgidae plus Zoridae are newly seen as monophyletic. The Miturgidae still group with the 'higher' lycosoids and remain remote from *Phanotea*, *Devendra*, *Griswoldia*.

Significant differences between this cladogram and that of Griswold (1993) are that the Zoroeratidae are now part of the zoropsoid complex and within the Lycosoidea. This cladogram shows that the Zoropsinae, Zoroeratinae and Griswoldiinae are monophyletic and the sister group is the Ctenidae. Of minor difference, the relationships between zoroeratid genera are preserved save that *Zorodictyna* and *Raecius* are not sister groups.

CONCLUSIONS

The Zoropsidae are now expanded substantially and considered to include three subfamilies: Zoropsinae, Zoroeratinae and Griswoldiinae, the latter two are new placements. The characters upon which the group is based are the tibial crack in males (#0, with presumed reversals in *Takeoa*, *Uliodon* and *Zorocrates*), anterior abdominal shield in males (#3, with a presumed reversal in *Phanotea*), the truncate apical cymbium (#2, with presumed reversals in *Griswoldia* and *Zorodictyna*), and the ALE being relatively larger than the AME (#42). The position of *Acanthoctenus* is contentious as only one character was used that would unite it with other etenids, the etenoid eye condition. We propose that a cladogram that includes more etenid taxa would unite *Acanthoctenus* with them and not as the sister group of the zoropsoids. Hence, *Acanthoctenus* is maintained in the Ctenidae. Two characters found in *Acanthoctenus* are shared with the Zoropsidae — scopula on the dorsal cymbium of males (#1) and spigots dorsally in rows on the PMS of females (#63).

The cladogram supports the transfer of the Zoridae to the Lycosoidea, indicated by the presence of a grate-shaped tapetum. Also, the Miturgidae are the sister group of the Zoridae and shown to be more closely related to lycosids and pisaurids than the Zoropsidae and Ctenidae.

SYSTEMATICS

Family ZOROPSIDAE BERTKAU, 1882

Zoropsididae [sic.] Bertkau, 1882: 337.
Uliodoninae Lehtinen, 1967: 316. Synonymised by Raven & Stumkat (2003).

DIAGNOSIS. Male Zoropsidae differ from those of Miturgidae in the dense scopula dorsally on male palpal cymbium, pedal tibia with basal fracture, 4-5 pairs of strong spines on raised bases on tibiae I, II and a selerotised plate on the anterior abdomen. Most female zoropsids have spigots dorsally on the posterior median spinnerets but all have strongly paired spines on raised bases on tibiae and metatarsi I, II. Other characters used in the diagnostic description are more equivocal.

Males with dense scopula dorsally on male palpal cymbium, pedal tibia with basal crack, exeept *Takeoa*; tibial apophysis, if present, more dorsal than retrolateral; eyes in two recurved rows; 2-3 claws; claw tufts present or absent. Cribellum present or absent. Spigots present dorsally on PMS of females; apical PLS short, domed. Femur I, especially of females, with enlarged spine proventrally; 4 pairs of strong spines ventrally on tibia and 3 pairs on metatarsi I, II. Trochanters weakly but distinctly notched. Labium wider than long or as long as wide.

SUBFAMILIES.
Zoropsinae.
Akamasia Bosselaers, 2002 (Cyprus); *Birrana* gen. nov. (Qld); *Huntia* Gray & Thompson, 2001 (WA and Vic); *Kilyana* gen. nov. (Qld, NSW); *Krukt* gen. nov. (N Qld); *Megateg* gen. nov. (N Qld); *Takeoa* Lehtinen, 1967 (Japan); *Uliodon* L. Koch, 1873 (New Zealand); *Zoropsis* Simon, 1878 (Holarctic, introduced to North America).
Zorocratinae.
Campostichomma Karsch, 1891 (Sri Lanka); *Raecius* Simon, 1892 (equatorial Africa); *Uduba* Simon, 1880 (Madagascar); *Zorocrates* Simon, 1888 (USA, Mexico, Central America); *Zorodictyna* Strand, 1907 (Madagascar).
Griswoldiinae.
Devendra Lehtinen, 1967 (Sri Lanka); *Griswoldia* Dippenaar-Schoeman & Jocqué, 1997 (South Africa); *Phanotea* Simon, 1896 (South Africa).

RELATIONSHIPS OF AUSTRALIAN ZOROPSIDS. All 4 new genera described here share the combination of 2 recurved eye rows with lateral eyes the largest, a broad carapace, (distinct & strong) claw tufts, 2 claws, strong paired spines on tibiae and metatarsi I, II, legs I & II laterigrade, tibial apophysis more dorsal than retrolateral on the male palp, and a dense scopula dorsally on the cymbium. All have a form of tegular-subtegular interlocking lobes on the male palp. They also share two other characters of significance. The spinnerets are on a raised conical base, similar to but not quite so pronounced as in the sparassid Sparianthidinae. Second, males have a selerotised scute with a paired depression on the front surface of the abdomen. The depression in males is generated by transverse anterior sigilla also present in females. Females also have spigots in two lines along the dorsal surface of the PMS.

Megateg and *Krukt* share a long tarsal rod and leg scopula weak or absent. *Megateg* has long male palpal tibia, extensive basal tegulum, short distal embolus, no basodorsal process on cymbium, and the epigyne is a flat plate with convergent grooves around a low ridge and often with basolateral 'cleats'. The embolus is short and simple, varying from a narrow spike to a grooved sheath; however, apically it reflexes back strongly and continues along the leading edge of embolic lamina. The median apophysis is always mobile and a scooped retrolateral plate with a small apical hook. The tegulum is consistently dominant and basal and the sperm duct smoothly follows the outer edge from the retrodistal origin to the embolus. The cymbium is always apically truncate with an extensive dorsal scopula. A distinct retrobasal discontinuity is present in some species. The tibial apophysis is simple, often large and retrolateral to dorsal.

Of the two genera in southern Queensland and northern New South Wales, *Kilyana* lacks a tarsal rod (but a scopula is present but weak in females and stronger in males) whereas *Birrana* has a tarsal rod.

KEY TO GENERA OF AUSTRALIAN ZOROPSIDAE

1. Males (males of *Huntia murrindal* Gray & Thompson, 2001 unknown) 2
   Females. 6
2. Tarsal rod present (Fig. 3F) 3
   Tarsal rod absent 5
3. Palpal tibia much longer than wide (Figs 6, 12D) *Megateg*
   Palpal tibia little or hardly longer than wide (Figs 25A, 37A). 4
4. Tegulum small, retrolateral (Fig. 23A) . . . . . *Krukt*
   Tegulum large, basal (Fig. 36A). . . . . *Birrana*
5. Two claws and claw tufts (Fig. 40A) . . . . . *Kilyana*
   Three claws and tufts absent. . . . . *Huntia deepensis*
6. Two claws and claw tufts (Fig. 40A) 7
   Three claws and tufts absent . . . . . *Huntia murrindal*
7. Tarsal rod present (Fig. 3E). 7
   Tarsal rod absent . . . . . *Kilyana*
8. Tarsal rod short (Fig. 38B) . . . . . *Birrana*

Tarsal rod long (Fig. 3F) 9

9. Epigyne with lateral cleats weak or absent (Figs 11B); single simple receptaculum (e.g., Fig. 14B) . . . . . *Megateg*, part

Epigyne with distinct lateral cleats (Fig. 12G); receptaculum variable 10

10. Epigyne with narrow hirsute scape-like septum (Fig. 23D). . . . . *Krukt piligyna*

Epigynal scape absent or not narrow and hirsute . . . 11

11. Epigyne very flat, 2-dimensional; lateral cleats low (Fig. 12E, 14A, 19C). . . . . *Megateg*, part

Epigyne strongly raised with strong deep lateral cleats (Figs 26D, 29D, 32C) postero-laterally . . . *Krukt*, part

Huntia Gray & Thompson, 2001

Huntia Gray & Thompson, 2001: 164.

TYPE SPECIES: *Huntia deepensis* Gray & Thompson, 2001.

DIAGNOSIS. Tibial crack present. Third claw reduced; claw tufts absent. Palpal conductor present. Tarsal organ short, distal or central rod.

INCLUDED SPECIES. *H. deepensis* Gray & Thompson, 2001; *H. murrindal* Gray & Thompson, 2001.

REMARKS. The female of *Huntia murrindal* Gray & Thompson, 2001 differs from that of *H. deepensis* by its tarsal rod. However, the male is unknown and using this key would key to *Megateg*. If the diagnostic conductor in the male of *H. deepensis* is consistent in *H. murrindal* that character would distinguish the two genera.

DISTRIBUTION. WA and Victoria (Fig. 20).

Megateg gen. nov.

TYPE SPECIES: *Megateg ramboldi*, sp. nov.

ETYMOLOGY. An arbitary combination of letters; the gender is female.

DIAGNOSIS. *Megateg* differs from *Zoropsis* in the absence of a cribellum and having both anterior and posterior median eyes smaller than their respective lateral eyes. Males of *Megateg* are readily distinguished from those of *Krukt* in the long palpal tibia and the basally extensive tegulum and the flared apex of the embolus; females differ in that the epigyne is low with paired lateral grooves whereas females of *Krukt* have an elevated scape or septum medially. It differs from *Miturga* in the combination of two recurved eye rows, a broad carapace, distinct and strong true claw tufts, a crack basally on the pedal tibiae of males, a retrodorsal rather than retrolateral tibial apophysis on the palp, a dense scopula dorsally on the cymbium and a long tarsal rod. The synapomorphy of *Megateg* is the combination of the long tarsal rod and the flared apical tip of the embolus back into which the sperm duct recurves.

DESCRIPTION. *Carapace*: broadly pear-shaped; lateral profile gently curved from posterior margin to just anterior to fovea and gently curved down to short vertical clypeus. Carapace outline like *Heteropoda* (Sparassidae); caput delineation indistinct save for pigmented Y; other striae indicated only by short black setae. Pilosity: uniform cover of short fine brown hairs; long bristles along clypeal edge; shorter black bristles in radial strial lines. Fovea short, deep, longitudinal with triangular dark zone anteriorly; fovea starts just behind widest carapace. Margins not rebordered. Colour yellow brown with brown radial marks with 3 pallid ovoid areas on margin. Hair types simple, not feathery. Eye region not forming a black mask. *Eyes*: 8 in two clearly recurved rows; median eyes clearly smaller than laterals. AME on common tubercle set forward of clypeus; eyes look forward and to side at about 45°; about 1.2 diameters apart. ALE inset, on low tubercle, look forward and to side; with short curving ridge ectally, close to AME. MOQ a long quadrangle, wider behind than in front. PME small, pallid, subcircular, raised, and look up; about 2 diameters apart. PLE on low tubercle, look back and to side; ca. 3 diameters from PME. Front row straight; clypeus = ca. 2 × AME diameter. Group occupies 0.5-0.68 of headwidth (front width: back width: length, ca. 3: 4: 2). Tapetum grate-shaped in *Megateg ramboldi*.

Chelicerae: short, large with distinct boss. Dentition: p=2-4, r=3-4. Fang without processes, long, transverse; strong teeth near fang base; no enlarged fang setae. In males, chelicerae smaller but with relatively longer groove. *Labium*: slightly longer than wide, anteromedially domed, basally constricted with marginal teeth; not rebordered and without other grooves; uniformly but lightly hirsute. *Maxillae*: about twice length of labium, basally narrowly truncate, anteriorly enlarged, medially laterally constricted. Short, indistinct scopula on rounded anterior ental edge; serrula short, slightly curved. *Sternum*: broad, flat, subcircular, not extending between coxae IV; intercoxal selerites at III/IV. Uniformly hirsute. Pedicel unselerotised.

Legs: I & II laterigrade. Coxae similar; precoxal selerites larger anteriorly than posteriorly, distinct on all coxae. Femora I, II clearly thicker than III, IV; less so or not in males. Trochanters

with shallow asymmetrical notches on II-IV (e.g., Fig. 34A), I not notched. Retrocoxal hymen on coxa I ovoid, subcentral, similar in males and females. Scopula absent or weak on metatarsi & tarsi I, II of males and females. Tarsi in males and females short (I = 0.4 of metatarsus length), not flexible, cylindrical for length. Female palpal tarsi apically conical but arched in lateral view. No single elongate setae distally on patellae and tibiae of legs. Leg hairs simple. Males with relatively longer legs; trochanters like female. *Spines*: females with very long, strong proventral spine on femora I (e.g., Fig. 33D); four pairs of strong spines on raised bases overlapping ventrally on tibiae I, II (e.g., Fig. 34C); 3 strong pairs ventrally on metatarsi I, II, with basal two pairs very long with short distal pair; no spines laterally on tibiae I, II, retrolateral femora I, II, patellae I-II, or on leg tarsi. Spines present dorsally laterally and ventrally on tibiae III, IV and laterally and ventrally on metatarsi III, IV; distal whorl short on metatarsi III, IV. Preening combs absent. *Males*: with many long erect hairs on tibiae to tarsi. Spines on I, II like female but more slender and shorter; patellae I, II with retrolateral spines; tibiae I, II also with dorsal and lateral spines; metatarsi I, II also with lateral spines. Tibial crack in males orthogonal to long axis (e.g., Fig. 22F), most basal ventral tibial spine pair proximal of crack. *Trichobothria*: in two irregular rows or bands for length of tibiae; very long hairs on metatarsi and tarsi in band along dorsal surface; base with 3-5 transverse ridges (e.g. Fig. 38B). *Tarsal organ*: an elongate rod with apical aperture (Fig. 3F), set in large soft ovoid base at basal 1/3-2/5 of tarsus. *Claw tufts* (Fig. 22A-E): small, dense, cluster on ental side of claws; tufts shorter than claws. Two claws each with one moderately long and 1-2 smaller teeth basally; claws not obscured by hairs. Metatarsi with unilobate membrane distally. Female palpal claw without tuft; *ca.* five moderately long teeth; palpal patella with deep narrow distal invagination for distal 5/6 in females, distal 1/3 in males.

Abdomen: dorsally brown with darker brown foliate pattern; scutes absent but males with large shallow pair of depressions in sclerotised shield on anterior face (e.g., Fig. 3A); pilosity as for carapace; venter pallid. Tracheal spiracle indistinct, near spinnerets. *Spinnerets* (Fig. 17A-F): broad, triangular to wide rectangular, hirsute colulus. In females, spinnerets on raised base similar to Sparianthinae. ALS short, broad, truncate, coniform, apical segment distally reniform with two large spigots entally, 2-3 smaller spigots medially and a field of 30-40 smaller spigots. PLS of similar length but *ca.* 0.5 diameter of ALS, apical cone short, domed with 1-2 large spigots apically. In females, PMS short, triangular in lateral view with two rows of spigots along true dorsal surface (e.g., Fig. 3E); in males, bases of ALS separated and PMS are simple cylinders but with 3 large spigots apically.

Epigyne: with median septum and lateral cleats basally or cleats absent; a longitudinal copulatory fossa leads directly to small simple spermatheeae posteriorly.

Male Palp: tibia longer than wide with glabrous ventral concavity for distal third; tibial apophysis is retrodorsal (base is not visible from ventral view, Fig. 10D), simple, with predistal dark sclerotised zone and without unsclerotised areas or laminas, and process is not socketed. Cymbium deep, partially encloses bulb laterally; dense distal scopula (e.g., Fig. 33C) oval for 2/3 length; no basidorsal process; cymbium distally indented; with retrobasal dorsal concavity with deep U-shaped invagination presumably to receive probasal dorsal tibial sclerite. Bulb with large basal trilobate tegulum for basal 1/3-1/2; median apophysis short, hooked scoop retrolaterally; conductor absent; distal embolus short, hooked, prodistally with distal flared apex with translucent dorsal wing. Median apophysis and embolus bases widely separated and each free; embolus extends back as long scythe-like hook; subtegulum large with subtle notch (interlocking lobe, Fig. 3C,D) against tegulum.

DISTRIBUTION AND HABITAT. From rainforest between the Bloomfield River, north of Cairns, to Hinchinbrook Island in the south; only in northeastern Queensland.

INCLUDED SPECIES. *M. bartholomai*, sp. nov.; *M. covacevichae*, sp. nov.; *M. elegans*, sp. nov.; *M. gigasep*, sp. nov.; *M. lesbiae*, sp. nov.; *M. paulstumkati*, sp. nov.; *M. ramboldi*, sp. nov.; *M. spurgeon*, sp. nov.

RELATIONSHIPS. As with other groups found in rainforests of the Wet Tropics World Heritage Area of Queensland, e.g. the zodariid *Tropasteron* (Baehr, 2003), interrelations of species of both *Megateg*, gen. nov. and *Krukt*, gen. nov., within the region resist full elucidation. Males of all *Megateg* species for which they are known have the palpal tibia bowed or straight (*M. elegans*). Of the former group, males of *M. bartholomai* and *M. spurgeon* share a very large

tibial apophysis; in other species, it is small. In *M. ramboldi*, *M. covacevichae* and *M. paulstumkati*, the submarginal palpal lamina is large that is taken to be the synapomorphy of the group. Lateral epigynal cleats are found in females of *M. spurgeon*, *M. ramboldi*, and *M. elegans* but since they are also found in the sister genus *Krukt*, gen. nov., their presence in *Megateg* is considered plesiomorphic. Males of *M. lesbiae* and *M. gigasep* are unknown and hence those species are considered to form a basal polytomy with *M. elegans*. Hence, the cladogram of *Megateg* is:
(*M. lesbiae*-*M. elegans*-*M. gigasep* ((*M. covacevichae*-*M. ramboldi*-*M. paulstumkati*)(*M. bartholomai*-*M.spurgeon*))).

BIOGEOGRAPHY. Most species occur in montane rainforests of the Wet Tropics World Heritage Area and most are endemic to adjacent forests. However, *M. elegans* is widespread from Cape Tribulation south to about Ravenshoe but with disjunct outliers just south at Walter Hill Range. It also appears to be the lowland complement, if not sister species, of the mountain top *M. ramboldi*. The simple vulva of *M. lesbiae* (known only from females) unequivocally associates the species with *Megateg* and shares with the Walter Hill Range material of *M. elegans* the most southerly known extent of the genus.

In most localities, only one species of *Megateg* is present. However, the Mt Spurgeon area includes three species *M. bartholomai*, *M. spurgeon* and *M. paulstumkati*, of which only the latter is endemic to Mt Spurgeon which must be considered a centre of diversity.

KEY TO SPECIES OF *MEGATEG*

Males (males of *Megateg lesbiae* and *M. gigasep* unknown)

1. Tibial apophysis large, heavy (Figs 6D, 9D) 2
   Tibial apophysis slender, tapers distally (Fig. 6A,C) . . 3
2. Embolus with strong basal thorn (Fig. 9B) . . . . . *M. bartholomai*
   Embolus without basal thorn (Figs 18B, 19A) . . . . . *M. spurgeon*
3. Palpal tibia cylindrical, clearly not bowed (Fig. 6A,B) . 4
   Palpal tibia clearly bowed laterally (Fig. 6C,E). 5
4. Embolus apically a long slender spike (Fig. 12A,B); palpal tibia with retrobasal cluster of long thick blunt bristles (Fig. 6I1) . . . . . *M. elegans*
   Embolus apically wider or truncate (Fig. 7A); palpal tibia basally without cluster of thick blunt bristles (Fig. 6A) . . . . . *M. ramboldi*
5. Palpal tibia longer (Fig. 6C); median apophysis distally broad with apical lamina (Fig. 10B). . *M. covacevichae*
   Palpal tibia shorter (Fig. 6E); median apophysis tapers to slender hook; vane is basal (Fig. 15B) . *M. paulstumkati*

Females

1. Median scape very broad with sinuous lateral ridges posteriorly (Fig. 13A,B) . . . . . *M. gigasep*
   Median scape not broad or no sinuous ridges posteriorly . 2
2. Lateral cleats on epigyne present (Fig. 12E), sometimes indistinct (Fig. 14A) 5
   Lateral cleats clearly absent (Figs 9F, 16A). 3
3. Large black epigyne with medial groove widely separating lateral lobes (Fig. 9F) . . . . *M. bartholomai*
   Epigyne pallid, lateral grooves close or convergent . . 4
4. Epigynal ridges join or form U-shape posteriorly (Fig. 11B). . . . . *M. covacevichae*
   Epigyne, lateral grooves form biconcave lens (Fig. 16A) . . . . . *M. paulstumkati*
5. Paramedian groove on epigyne distinct (Fig. 10C) . . . 6
   Paramedian groove on epigyne absent or transverse and indistinct (Fig. 14A) . . . . . *M. lesbiae*
6. Paramedian grooves distinctly converge posteriorly (Fig. 19C) . . . . . *M. spurgeon*
   Paramedian grooves flask-like, widest medially or predistally (Figs 8A, 12E) 7
7. Median septum with long anterior neck (Fig. 12E) . . . . . *M. elegans*
   Median septum bulbuous with shorter anterior neck (Fig. 8A) . . . . . *M. ramboldi*

Megateg ramboldi sp. nov.
(Figs 3A,B,D, 4, 5E, 6A,B, 7-8; Table I)

ETYMOLOGY. For Dr Gerhard Rambold, University of Bayreuth.

MATERIAL. HOLOTYPE. ♂, Bellenden Ker Ra, Summit TV Stn, 17°16'S 145°51'E, NEQLD, rainforest, pitfall, 1-30 Apr 1982, S.Montague, QM S31174. PARATYPES. Bellenden Ker Ra, sieved litter: Centre Peak Summit, 17°16'S 145°51'E, 1560m: 4 ♀♀, 10-12 Apr 1979, G. Monteith, QM S31175 (allotype), S27866-8; 1 ♂, 2 ♀, 28 Oct 1983, G.Monteith, D. Yeates, G Thompson, QM S32952, S31184; 6 ♀♀, 29 Apr-2 May 1983, G.Monteith, D.Yeates, QM S31183, S31180, S27859, S31181; 2 ♀♀, 1-7 Nov 1981, Earthwatch Qld Museum, QM S27857; 1 ♀, same data but 17-24 Oct 1981, QM S27865; 1 ♂, 8 Oct 1991, G.Monteith, H.Janetzki, D.Cook, QM S31182; 3 ♀♀, Cable Tower 3, 17-24 Oct 1981, Earthwatch Qld Museum, QM S26231; 1 ♀, same data but summit, 25 Oct- 7 Nov 1981, QM S26230. Mt Bartle-Frere, Earthwatch Qld Museum expedition: 1 ♀, NW-centre Peak ridge, 17°23'S 145°48'E, 7-8 Nov 1981, QM S39532; 2 ♀♀, 0.5km north of South Peak, 17°24'S 145°49'E, sieved litter, 6-8 Nov 1981, QM S39533; 1 ♂, Sth Peak Summit, 6-8 Nov 1981, QM S39534. All in rainforest in NEQld.

DIAGNOSIS. Differs from *M. elegans* in males lacking a retrobasal setal cluster on the cylindrical palpal tibia and females have a medial pair of smoothly biconvex ridges forming the septum whereas in *M. elegans*, the distal quarter of the septum quickly widens.

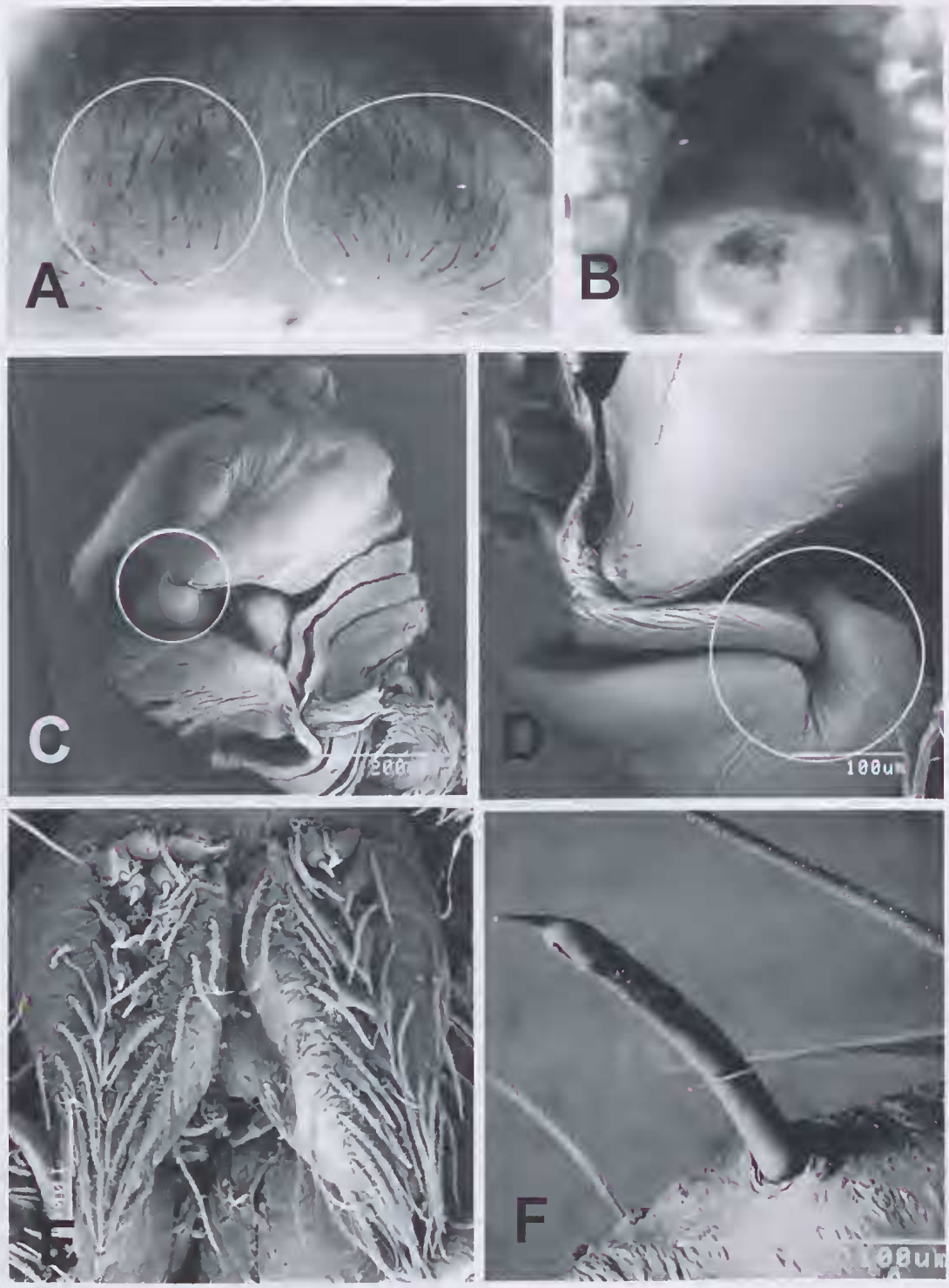

FIG. 3. *Megateg ramboldi*, sp. nov., A-D, ♂, anterior face of abdomen showing selerotised shield, encircled (A). C, D, ♂ palpal bulb with interlocking lobe encircled. E, *Krukt piligyna*, sp. nov., ♀, posterior median spinnerets, dorsal view. F, *Megateg elegans*, sp. nov., ♀ tarsus 1, tarsal rod, lateral view.

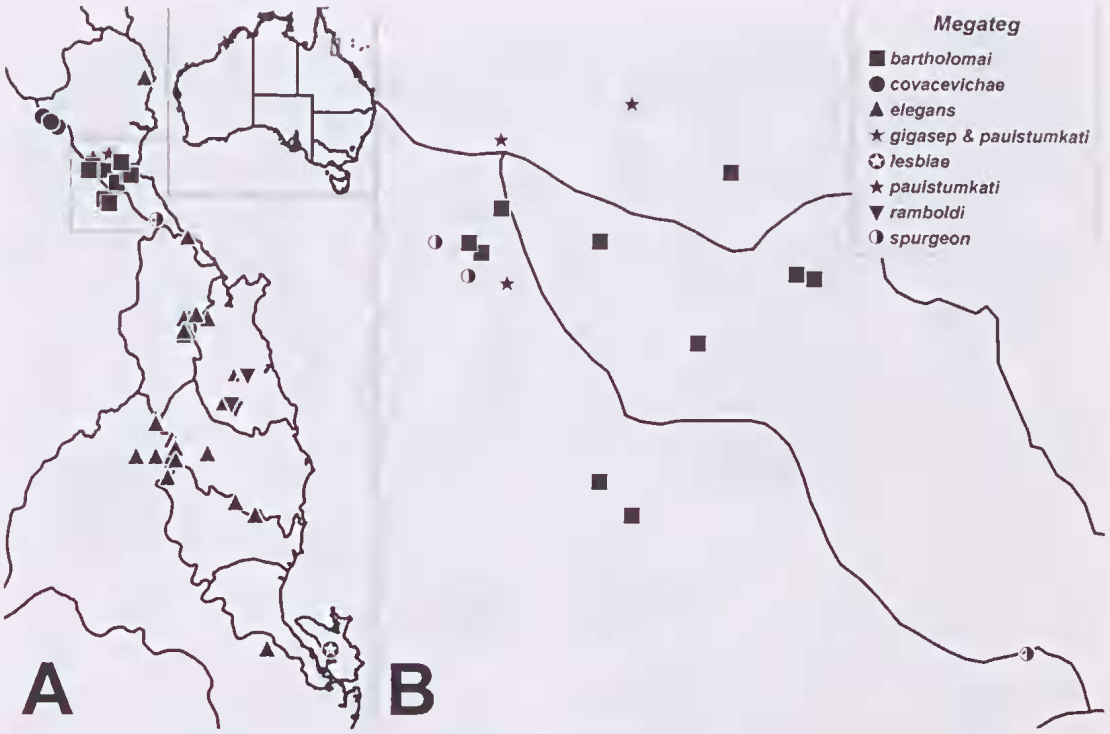

FIG. 4. *Megateg*, distribution map, showing drainage basin ridges.

DESCRIPTION. Holotype ♂. Carapace 5.08 long, 4.20 wide. Abdomen 4.04, 3.16 wide. Total length, 9.2.

Eyes: AME:ALE:PME:PLE, 11:14:10:12. Eye group front width: back width: length, 65:90:42. Interspaces: AME-AME, 0.9; AME-ALE, 0.4; PME-PME, 1.8; PME-PLE, 1.1.

Chelicerae: p=3, r=3.

Spines: I: fe pv1p2d4r3; pa r1; ti p3d2r3v2.2.2.2; me v2.2.2. II: fe pv1p3d3r4; pa r1; ti p3d2r3v2.2.2.2; me p2r2v2.2.2. III: fe p4d4r4; pa r1; ti p2d2r3v2.2.2; me p4r4v2.2.2. IV: fe p4d3r3; pa r1; ti p2d2r2v2.2.2; me p4r3v7. Palp: fe p1d2.

Legs: scopula absent; tibial fracture on I, II prolaterally distinct, grooved retrolaterally, not evident retrolaterally on III, IV. Trochanteral notches shallow, deeper in back of notch than front.

Palp: tibia cylindrical, longer than wide; 8-10 long setae on retrobasal corner, cluster of long hairs below tibial apophysis but more retrobasally and glabrous around it, prolaterally of that; with ventral, low, distal collar and higher prodorsal collar. Tibial apophysis a small dorsal (base not evident viewed ventrally), sinuous, blunt blade; from ventral, brush obscures apophysis but face of blade parallel to eye; from side, knife-like with basal enlargement. *Cymbium*: scopula extends along sloping surface; basodorsal process absent; paracymbial discontinuity absent but much cymbium evident wide of bulb. *Bulb*: median apophysis scooped

TABLE 1. Leg measurements of *Megateg ramboldi*, holotype male and allotype female.

Male	I	II	III	IV	Palp
Femur	5.08	4.54	3.85	4.54	2.46
Patella	1.92	1.92	1.08	1.54	1.08
Tibia	5.08	4.15	2.69	4.08	1.08
Metatarsus	5.69	4.31	3.38	4.92	1.08
Tarsus	1.69	1.54	1.31	1.85	
Total	19.46	16.46	12.31	16.93	5.70
Female	I	II	III	IV	Palp
Femur	3.46	3.31	2.85	3.69	1.54
Patella	1.92	1.85	1.54	1.54	1.00
Tibia	2.92	2.69	1.85	2.85	1.08
Metatarsus	2.46	2.31	1.85	3.61	1.15
Tarsus	1.00	1.00	1.00	1.15	
Total	11.76	11.16	9.09	12.84	4.77

FIG. 5. *Megateg*, cephalothorax and abdomen, dorsal view. A, *M. elegans*, sp. nov., ♂. B, *M. covacevichae*, sp. nov., ♂. C, *M. paulstumkati*, sp. nov., ♂. D, *M. lesbiae*, sp. nov., ♀. E, *M. ramboldi*, sp. nov., ♀.

with simple eetal hook with basal hyaline lamella; base regular, ereseentie, small. Embolus short, wide, hooked with hyaline extension distally. Small, hyaline, leaf-shaped proeess plus small triangular proeess between base of embolus and median apophysis.

Allotype ♀ QMS31175. Carapaee 5.84 long, 4.64 wide. Abdomen 5.84, 4.44 wide. Total length, 12.

Eyes: AME:ALE:PME:PLE, 10:13:9:I2. Eye group front width: back width: length, 77:110:44. Interspaces: AME-AME, 1.8; AME-ALE, 1.2; PME-PME, 3.1; PME-PLE, 1.6.

Chelicerae: as for male.

Spines: I: fe pv1 strong, p1d2r1; pa 0; ti v2.2.2.2; me v2.2.2. II: fe p3d3rI; pa 0; ti v2.2.2.2. me v2.2.2. IlI: fe p3d3r2; pa 0; ti p2d2r2v2.2; me p4r5v2.2.2. IV: fe p3d3r1; pa r1; ti p2d2r2v5; me p4r4v7. Palp: fe p1d2; pa 0; ti p2; ta p3.

Legs: seopula on tarsi 1, II weak. Paired elaws with 2-3 teeth. Tarsal rod at basal 1/3 of tarsi.

Epigyne: a pair of sinuous lateral hoods; long, narrow, median septum, reniform when viewed axially from front (Fig. 8B).

DISTRIBUTION AND HABITAT. High altitude (>700m) rainforest at Bellenden Ker Range and Mt Bartle Frere, NE Qld.

Megateg bartholomai sp. nov.
(Figs 4, 9; Table 2)

ETYMOLOGY. For Dr Alan Bartholomai, Director, of the Queensland Museum from 1969 to 1999.

MATERIAL. HOLOTYPE. ♂, Upper Cow Ck, 1.5km NE of Mt Spurgeon, 16°26'S 145°13'E, NEQLD, 15-21 Oct 1991, G.Monteith, H.Janetzki, D.Cook, L.Roberts, QM S31109. PARATYPES: Allotype, ♀, as for holotype, QM S31110. 1 ♂, as for holotype, QM S31111; 4 ♂♂, Mossman Bluff Track, 5-10km W Mossman, Site 8, 16°28'S 145°22'E, flight intercept trap, 1-17 Jan 1989, G.Monteith, G.Thompson ANZSES Expedition, QM S31145, S31152; 1 ♂, same data but 20 Dec 1989-15 Jan 1990, QM S16548; 2 ♂♂, same data but 16°25'S 145°20'E, 20-24 Dec 1989, QM S31147, 31151; 1 ♂, same data but Site 7, 16°28'S 145°22'E, 16-30 Dec 1988, QM S31150; 1 ♀, same data but site 10, 16°39'S 145°34'E, flight trap, 17-31 Dec 1988, QM S31133; 2 ♀♀, Mt Demi, summit, 16°30'S 145°19'E, pitfall, 17 Dec 1995-25 Jan 1996, G. Monteith, G.Thompson, Ford, QM S41358; 1 ♂, Mt Lewis, 16°35'S 145°17'E, sieved litter, 12 Oct 1980, G. Monteith, QM S31143; 1 ♀, Mt Lewis Rd, 22km from highway (Site 3), 16°35'S 145°17'E, pitfall, 18 Dec 1989-13 Jan 1990, G.Monteith, G.Thompson, ANZSES Expedition, QM S31192; 2 ♀♀, Mt Lewis, 2.5km N, 16°34'S 145°16'E, sieved litter, 3 Nov 1983, D.Yeates, G.Thompson, QM S31191; 1 ♀, Mt Lewis, 5.5km N, 16°34'S 145°16'E, sieved litter, 8 Sep 1981, G.Monteith, D.Cook, QM S31153; 4 ♂♂, Mt Spurgeon, 2k SE, 16°27'S 145°12'E, NEQLD, 20 Dec 1988-4 Jan 1989, G.Monteith, G.Thompson, ANZSES Expedition, QM S31146, S31156, S31144; 1 ♂, Pauls Luck, Carbine Tableland, 16°27'S 145°16'E, pitfall, 28-30 Nov 1990, G.Monteith, H.Janetzki, D.Cook, QM S31154; 1 ♀,

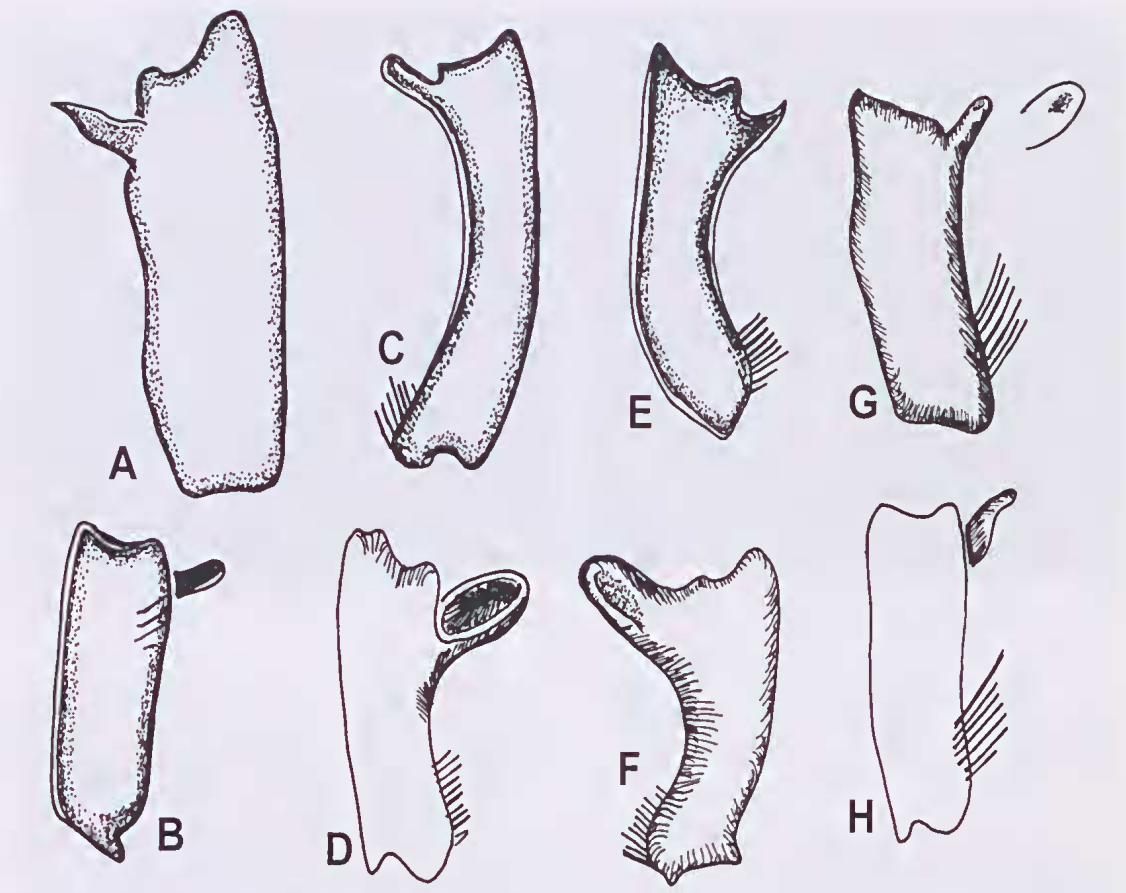

FIG. 6. *Megateg*, ♂ palpal tibia, left. A, B. *M. ramboldi*, sp. nov., dorsal (A) and ventral (B) views. C, *M. covacevichae*, sp. nov., dorsal view. D, F, *M. spurgeon*, sp. nov., ventral (D) and dorsal (F) views. E, *M. paulstumkati*, sp. nov., ventral view. G, H, *M. elegans*, sp. nov., ventral view, paratype, Upper Boulder Creek (G); H, QM S39045. Scale line = 1mm (B-G), H = 0.8mm.

Platypus Ck, Pauls Luck Track, 13km W Mossman, 16°27'S 145°16'E, pitfall, 1-16 Jan 1990, ANZSES expedition, QM S31193. All in NEQld and rainforest, except as noted.

DIAGNOSIS. Males are unique in the large triangular thorn on the basal embolus and the large scooped tibial apophysis. Females differ from those of *M. paulstumkati* in the full transverse copulatory groove.

DESCRIPTION. Holotype ♂ QM S31109. Carapace 4.20 long, 3.32 wide. Abdomen 3.00, 2.56 wide. Total length, 7.4.

Colour: carapace yellow brown with narrow dark submarginal band, darker on striae. Abdomen dorsally mostly yellow brown with dark 'shoulders', two pairs dark 'eyes', and mottled black tip above spinnerets; ventrally yellow

TABLE 2. Leg measurements of *Megateg bartholomai*, holotype male and allotype female.

Male	I	II	III	IV	Palp
Femur	3.01	3.01	2.92	3.46	1.46
Patella	1.15	1.15	1.15	1.31	0.69
Tibia	4.00	3.61	2.38	3.15	1.08
Metatarsus	3.92	3.00	2.77	4.08	1.23
Tarsus	1.92	1.46	1.31	1.77	
Total	14.00	12.23	10.53	13.77	4.46
Female	I	II	III	IV	Palp
Femur	2.54	2.69	2.23	2.92	1.31
Patella	1.31	1.38	1.15	1.31	0.85
Tibia	2.46	2.31	1.85	2.61	0.69
Metatarsus	2.00	1.92	1.69	2.85	0.92
Tarsus	0.77	0.69	1.00	1.38	
Total	9.08	8.99	7.92	11.07	3.77

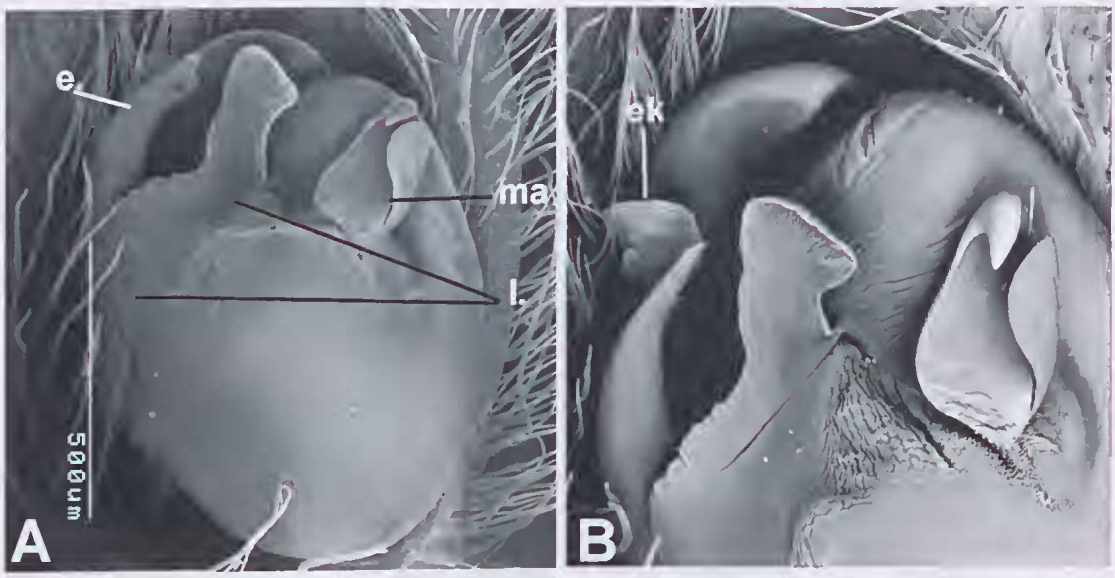

FIG. 7. *Megateg ramboldi*, sp. nov., ♂ palpal bulb, scanning electron micrograph, ventral view. A, bulb; B, distal bulb.

brown with transverse black flecks. Legs yellow brown with dark ring apically on all leg femora and 2 dark rings ventrally on femur IV and dark bands on distal tibia III, IV.

Eyes: AME:ALE:PME:PLE, 10:14:8:13. Eye group front width: back width: length, 55:71:36. Interspaces: AME-AME, 0.7; AME-ALE, 0.3; PME-PME, 1.7; PME-PLE, 0.7.

Chelicerae: p=3, r=3-4 teeth.

Spines: I: fe pv1 strong, p2d3r4; pa r1; ti p2d3r3v2.2.2.2; mc p2r2v2.2.2. II: fe pv1 weak, p3d3r4; pa r1; ti p2d3r3v2.2.2.2; me p4r3v2.2.2. III: fe p4:d3r4; pa r1; ti p2d2r2v2.2.2; me p4r4 v 2.2.2. Distal III & IV met with close paired laterals. IV: fe p4d3r3; pa r1; ti p2d2r2 v.2.2.2; me p4r5v7 unpaired. Palp fe d3r1.

Legs: scopula absent or at most very thin on tarsi I. Tibial fracture I-IV distinct pro- and retrolaterally. Trochanteral notches shallow, deeper in back of notch to front, twice as wide as deep.

Palp (Fig. 9A-D): tibia long, concave for length retrolaterally; basally, tibia with raised mound of 20-30 long, thick, dark, curved setae in cluster; scoop set wide, tibia distally incrassate. Tibial apophysis broad, converging slightly apically with thicker apex. Tibia with sclerotised collar opposite tibial apophysis tip and two large sclerotised collar-like processes, one distal, one retroventrally against base of cymbium. *Cymbium*: scopula extends over distal half; basodorsal process small and triangular, arising from discontinuously excavate surface; another triangular process retrolaterally and a small conical mound ventral of that; latter two flank a tibial collar. Paracymbial discontinuity a distinct, triangular, glabrous mound. *Bulb*: median apophysis small, roughly rectangular with apical hook, opposed by thin translucent short, scooped tegular vane, base irregular, large, cordate; embolus a wide, flat flange with one of two short conical processes prolateral of median apophysis. Translucent unsclerotised process between median apophysis and embolus (in line between) and one prolateral off base of median apophysis. Tegulum extensive, a broad collar occupying *ca*. 300° of bulb.

Allotype ♀ QMS31110. As for male except as follows. Carapace 4.56 long, 3.72 wide. Abdomen 5.56, 4.52 wide. Total length, 10.4.

Colour: carapace brown with irregular darker areas centrally & on margins. Abdomen like male with light flecking across abdomen. Legs extensively banded (amaurobiid basic pattern); distal and ventral femora, lateral patellae, distal tibiae and metatarsi.

Eyes: AME:ALE:PME:PLE, 11:16:7:13. Eye group front width: back width: length, 64:91:41. Interspaces: AME-AME, 0.9; AME-ALE, 0.3; PME-PME, 2.2; PME-PLE, 1.0.

Chelicerae: p=3, r=3.

Spines: I: fe pv1 strong, p1d2r1; pa 0; ti v2.2.2.2; mc v2.2.2. II: fe p1d3r1; pa 0; ti v2.2.2.2; me

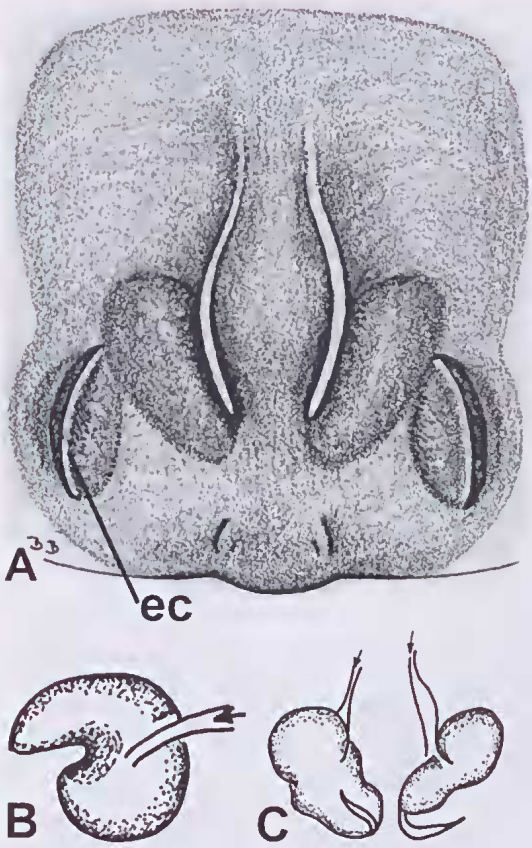

FIG. 8. *Megateg ramboldi*, sp. nov., ♀. A, epigyne. B, C, vulva, axial view from front (B), ventral view (C).

v2.2.2. III: fe p3d3r3; pa 0; ti p2d2r2v2.2.2. me p4r4v2.2.2. IV: fe p2d2r1; pa r1; ti p2d3r2v5; me p5r6v6. Palp: fe p1d2; pa 0; ti p2; ta p3.

Legs: seopula on tarsi I, II weak. Claws short with 3-4 teeth. Tarsal rod long, in apieal I/3.

Epigyne (Fig. 9F,G): a cordate plate with two narrow eurved grooves; vulva a pair of spheres.

DISTRIBUTION AND HABITAT. High altitude (>700m) rainforest at Mt Spurgeon, Mt Demi, Mt Lewis, Mossman Bluff, and Pauls Luek Traek, west of Mossman, NE Qld.

Megateg covacevichae sp. nov.
(Figs 4, 5B, 6C, 10, 11; Table 3)

ETYMOLOGY. For Jeanette Covaeevich, Senior Curator, Reptiles, Queensland Museum, 1966-2002.

MATERIAL. HOLOTYPE: ♂, Mt Windsor Tbld, Whypala SF, 16°15'S 145°02'E, notophyll vine forest, pitfall, Summer 92/93, S.Burnett, QM S24541. PARATYPES: allotype, ♀, as for holotype, QM S24549; 3 ♀♀, as for holotype, QM S33140, S33146, S33156; 1 ♀, Windsor Tableland, 5.7 km past barraeks, 16°14'S 145°00'E, NEQLD, rainforest, sieved litter, 23 Nov 1997, G Monteith, QM S43024. 1 ♀, Mt Lewis Rd, old Barraeks area, 16°35'S 145°17'E, 13 Jan 1990, ANZSES expedition, QM S31194. OTHER MATERIAL. 5 juvs., taken with holotype, QM S32949.

DIAGNOSIS. Differs from *M. paulstumkati* and *M. bartholomai* in males having a mueh longer palpal tibia and the tip of the tibial apophysis is broadly rounded rather than a pointed taper; females differ in that the median septum ridges are elearly eloser distally than proximally.

DESCRIPTION. Holotype ♂. Carapaee 4.16 long, 3.20 wide. Abdomen 3.00, 2.56 wide. Total length, 7.5.

Colour: earapaee yellow brown with brown around fovea, along strial ridges and submarginally; dark vee in front of fovea, along eaput edge and in diagonal line lateral of PLE. Legs with dark bands on distal femora to metatarsi and 2 extra below femora. Sternum, maxillae and labium yellow brown. Abdomen entirely darkly mottled.

Eyes: AME:ALE:PME:PLE, 8:15:9:15. Eye group front width: baek width: length, 53:74:35. Interspaees: AME-AME, 0.8; AME-ALE, 0.3; PME-PME, 1.5; PME-PLE, 0.7.

Chelicerae: p=3, r=3.

Spines: I: fe pvIp2d3r2; pa 0; ti p3d3r3v2.2.2.2; me v2.2.2. II: fe pv 1 strong, p3d3r3; pa rl; ti p3d3r3v2.2.2.2; me p1r2r2v2.2.2. III: fe pvIp3d3r4; pa rl; ti p2d2r2v2.2.2; me p4r3v2.2.2. IV: fe p4d3r3; pa rI; ti p2d2r2v.2.2.2; me p5r5v7 unpaired. Palp: fe pv1p1d1.2. Tibiae & metatarsi I, II with spines overlapping. Metatarsus I long, bowed.

Legs: long; seopula absent. Tibial fraeture I-IV distinet prolaterally. Trochanteral notehes shallow, I, II & on IV, deeper on III. Tarsal rod at 3/8 from base. Tufts small, entire. 3-4 teeth on elaws. RCH not evident.

Palp: tibia mueh longer than in *M. paulstumkati*; bowed, eoneave, prolaterally; basal mound low, setose. Tibial apophysis a broad, blunt, flat blade. *Cymbium*: seopula extent=2/3; basal eymbium prodorsally indented asymmetrically opposite more dorsal lobe on tibia, forms small, square, rounded proeess on retroventral eorner; margin indented retrobasally, wide for most of basal half; margin open apieally. Bulb: median apophysis a reetanguloid groove with one eorner apieally hooked, with irregular, extensive, reetangular base margin; embolus narrow, tapered flange;

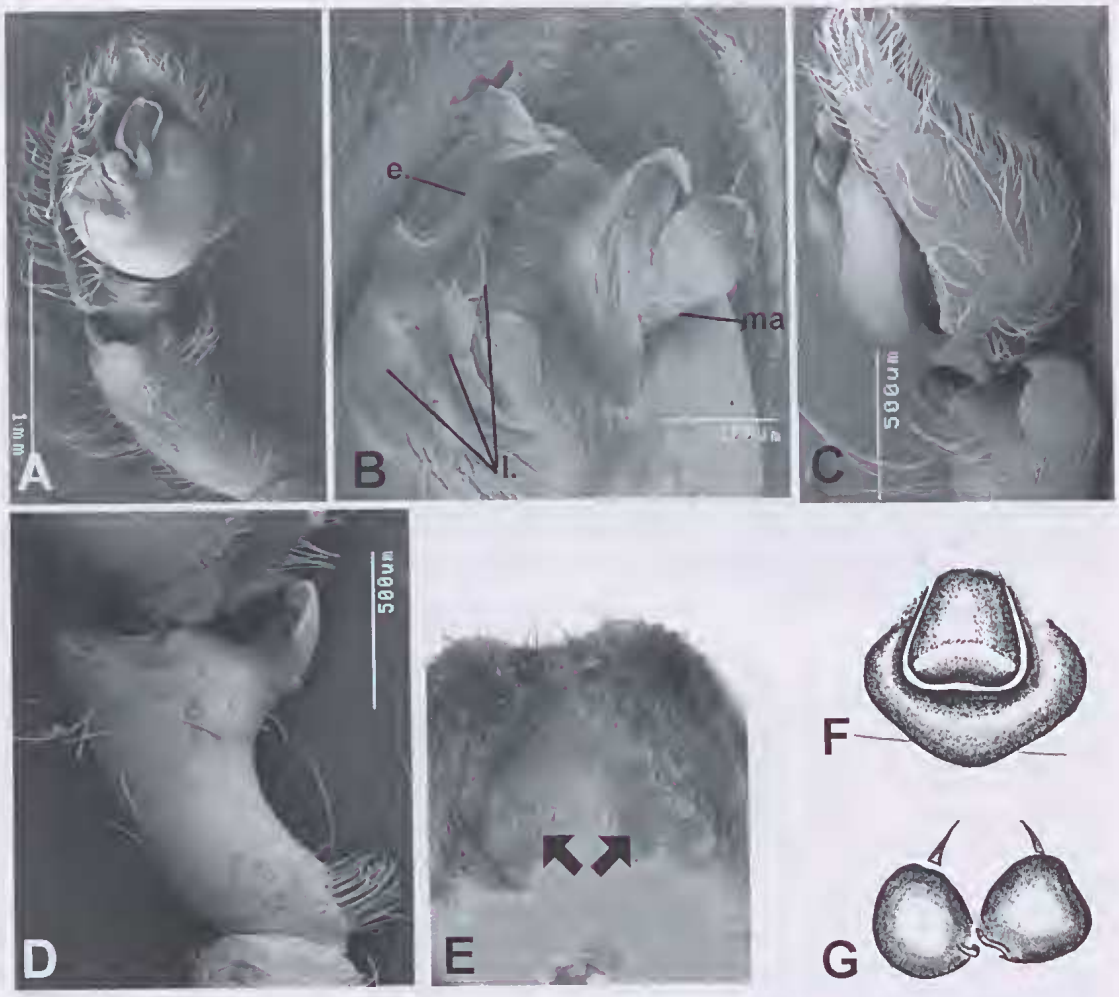

FIG. 9. *Megateg bartholomai*, sp. nov. ♂ palp, A-D; ♀, E, F. A, C, D, palpal tibia, eymbium and bulb (B), ventral (A, B, D) and retrolateral view (C); E, anterior shield, abdomen, showing attachment dises (arrows). F, epigyne; G, vulva.

TABLE 3. Leg measurements of *Megateg covacevichae*, holotype male and allotype female.

Male	I	II	III	IV	Palp
Femur	4.08	3.54	3.15	4.00	2.07
Patella	1.31	1.38	1.08	1.15	0.92
Tibia	5.00	3.77	2.46	3.38	1.54
Metatarsus	5.07	3.92	3.08	4.38	1.00
Tarsus	2.07	1.61	1.38	1.85	
Total	17.53	14.22	11.15	14.76	5.53
Female	I	II	III	IV	Palp
Femur	1.92	2.31	2.15	2.54	0.92
Patella	1.23	1.31	1.00	1.15	0.61
Tibia	2.07	1.77	1.54	2.23	0.77
Metatarsus	1.77	1.38	1.77	2.69	0.85
Tarsus	0.77	0.77	1.00	1.23	
Total	7.76	7.54	7.46	9.84	3.15

translucent vane set just behind embolus; large, u-shaped tegulum.

Allotype ♀. As for male except as follows. Carapace 4.00 long, 3.20 wide. Abdomen 4.24, 3.36 wide. Total length, 9.

As for male except: shorter-legged. No posterior sternum extension but post-sternal cuticle sliver is free. Legs more strongly marked (but vary to less marked in other specimens). Two dark stripes down each chelicerae.

Eyes: AME:ALE:PME:PLE, 8:11:9:12. Eye group front width: back width: length, 51:85:37.

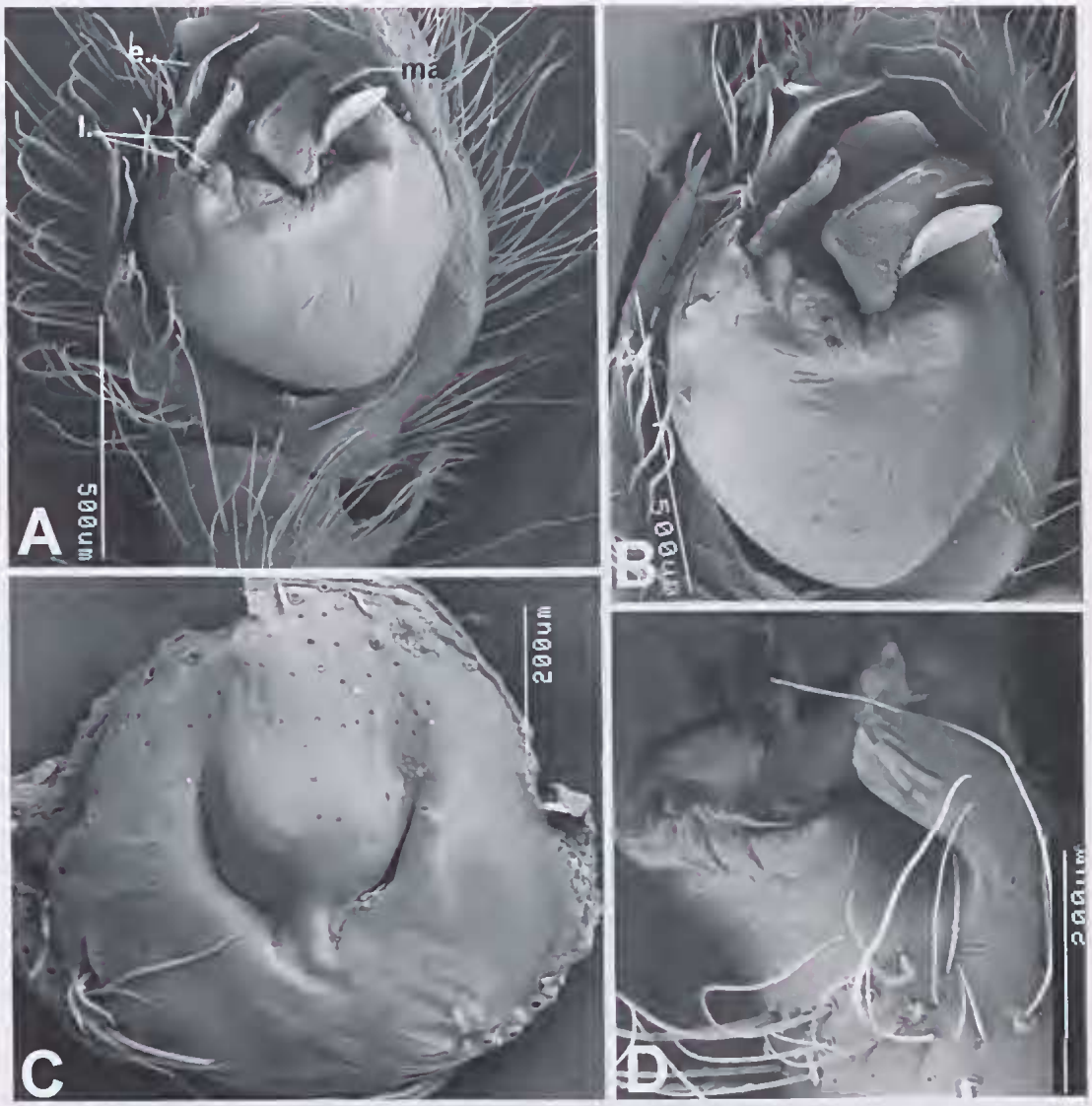

FIG. 10. *Megateg covacevichae*, sp. nov., ♂ palpal tibia (D), cymbium and bulb (B). A-C, ventral view. C, ♀, epigyne; D, palpal tibia, retrolateral view.

Interspaces: AME-AME, 1.3; AME-ALE, 0.6; PME-PME, 2.5; PME-PLE, 1.2.

Spines: I: fe pv1p1d2r1; pa 0; ti v2.2.2.2; me v2.2.2. II: fe p2d2r1; pa 0; ti v2.2.2.2; me v2.2.2. III: fe p3d3r3; pa r1; ti p2d2r2v2.2.2; me p4r4v2.2.2. IV: fe p2d3r1; pa r1; ti p2d2r2v6; me p4r3v6. Palp: fe p0d1.2; pa 0; ti p2; ta p3.

Legs: scopula absent; 2-3 large teeth on claws. Rod at basal 1/3.

Epigyne: ovoid with two convergent shallow grooves in V-shape; vulva simple.

DISTRIBUTION AND HABITAT. High altitude (>700m) rainforest at Mt Windsor Tableland and Mt Lewis, northeastern Queensland.

Megateg elegans sp. nov.
(Figs 3F, 4, 5A, 6G,H, 12, 33E,F; Table 4)

MATERIAL. HOLOTYPE: 1 ♂, Cape Tribulation, 5km W (Site 10), 780m, 16°05'S 145°26'E, stick brushing, 29-30 Sep 1982, G.Monteith, D.Yeates, G.Thompson, QM S31113. PARATYPES: Allotype, ♀, as above, QM S31114. 2 ♀♀, as above, QM S31115; 1 ♂, Davies Ck Rd, 17°03'S 145°36'E, sieved litter, 17 Dec 1989, G.Monteith,

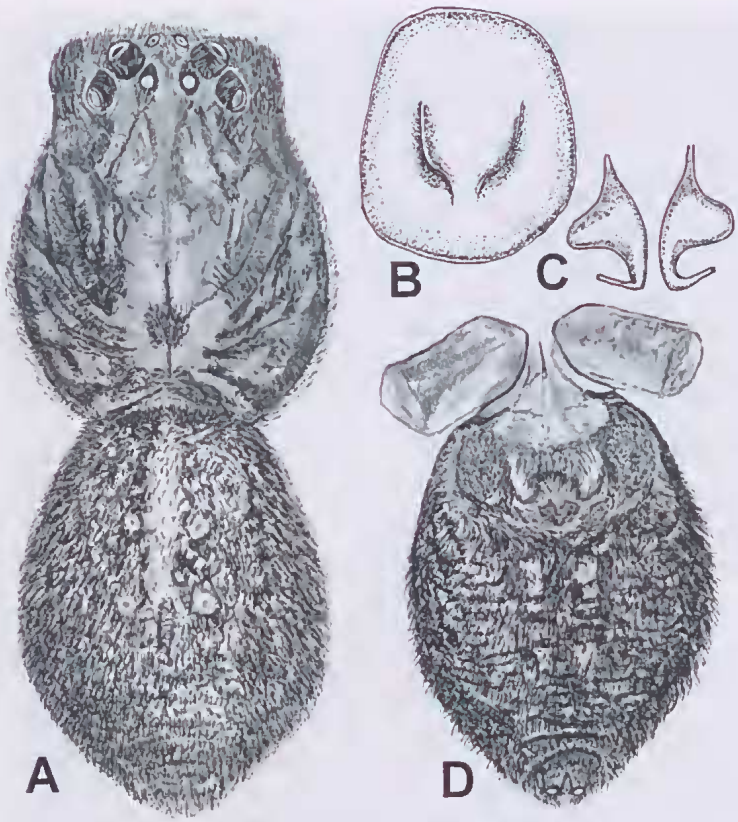

FIG. 11. *Megateg covacevichae*, sp. nov., ♀. A, cephalothorax and abdomen, dorsal view. B, epigyne; C, vulva; D, abdomen, ventral view.

4km W, center of Bellenden Ker, 17°16'S 145°49'E, NEQLD, 9-11 Oct 1991, G.Monteith, H.Janetzki, D.Cook, QM S31178; 1 ♀, Massey Ra, 17°16'S 145°49'E, sieved litter, 2 May 1983, G.Monteith, D.Cook, QM S31159. Mt Bartle-Frere, W Base, 17°23'S 145°46'E: 2 ♂♂, 1 ♀, flight intercept trap & pitfall trap, 25 Nov 1994-10 Jan 1995, G. Monteith, J. Hasenpusch, QM S31137, S31158; 3 ♂♂, same data but pitfall, 10 Jan-31 Mar 1995, QM S31136. Mt Edith (GS2), 17°06'S 145°37'E, flight intercept trap, P. Zborowski: 1 ♂, 31 May-30 Jun 1995, QM S39120; 1 ♂, 3 Jan-4 Feb 1995, QM S39078; 1 ♀, pitfall, 1 Dec 1994-3 Jan 1995, QM S39123. Mt Fisher (BS2), 17°34'S 145°34'E, pitfall & flight intereept trap, L. Umback: 2 ♂♂, pitfall, 30 Nov 1995-3 Jan 1996,QM S39086, S39046; 2 ♂♂, same locality but 1 Dec 1994-3 Jan 1995, P. Zborowski, QM S39126; 1 ♀, 2 Aug-4 Sep 1995, QM S39094; 1 ♂, 2-30 Nov 1995, QM S39124; 2 ♀♀, same data but litter, 27 Apr 1982, G.Monteith, D.Yeates, D.Cook, QM S31125; 1 ♂, 1 ♀, Mt Fisher, Kjellberg Rd, 17°32'S 145°33'E, pitfall, 1 Dec 1993-25 Feb 1994, J. Hasenpusch, QM S31117; ♂, 2 ♀♀, Mt Fisher, Whiteing Rd, 17°33'S 145°34'E, sieved litter, 5 May 1983, G.Monteith, D.Yeates, QM S31119, S31138; 2 ♀♀, Mt Formartine South, 10km N. Kuranda, 16°43'S 145°37'E, pitfall, 23-24 Nov 1990, G.Monteith, G.Thompson, QM S31176; 1 ♂, Mt Haig (GS1), 17°06'S 145°36'E, flight intercept trap, 31 May-30 Jun 1995, P. Zborowski, QM S39125; 1 ♂, same data but 29 Sep-31 Oct 1995, L. Umback, QM S39092; 1 ♀, Palmerston NP (NQ 11), 17°35'S 145°42'E, NEQLD, pitfall, 30 Oct 1991-24 Jul 1992, R.Raven, P.Lawless, M.Shaw, QM S24725; 1 ♂, Ravenshoe, 17°36'S 145°29'E, 15 Jul 1976, P. Filewood, QM S31142; 1 ♂, Vine Ck Rd, 17°41'S 145°32'E, sieved litter, 24 Nov 1994, G. Monteith, QM S31139; 1 ♂, Malaan Ra, 2km S Palmerston Hway, 17°36'S 145°24'E, pitfall, 10 Jan-7 Mar 1995, G. Monteith, J. Hasenpusch, QM S31120; 1 ♂, Mareeba, 22km SE, 17°07'S 145°36'E, sieved litter, 4 Nov 1983, D.Yeates G.Thompson, QM S31124. All in NEQ. OTHER MATERIAL. QM S32694, QM S31141, QM S31140, QM S20775, QM S31121, QM S31118, QM S31083, QM S41115.

G.Thompson, QM S31134; 1 ♀, Hugh Nelson Ra (GS3), 17°27'S 145°29'E, pitfall, 6 Mar-4 Apr 1995, P. Zborowski, QM S39079; 1 ♀, Isley Hills, 17°03'S 145°42'E, sieved litter & moss, 1 Dec 1993, G.Monteith, H.Janetzki, QM S39082. Lambs Head, 17°02'S 145°39'E: 3 ♀♀, sieved litter (*Agathis*), 10 Nov 1981, Earthwatch, Qld Museum, QM S31179; 1 ♀, pitfall, 10 Dec 1989-8 Jan 1990, G.Monteith, G.Thompson, H.Janetzki, QM S31177. Longlands Gap (BS1), 17°28'S 145°29'E: 2 ♀♀, flight intercept trap, 30 Nov 1995-3 Jan 1996, L. Umback, QM S39080, 39087; 1 ♂, flight intercept trap, 5-27 Feb 1996, L. Umback, QM S39083. Massey Ck (BS3), 17°37'S 145°34'E, L. Umback: 2 ♂♂ +1 ♂, pitfall, 31 Jan-27 Feb 1996, QM S39084, S39088; 1 ♀, flight intercept trap, 31 Jan-27 Feb 1996, QM S39115; ♀, pitfall, 30 Nov 1995-3 Jan 1996, QM S39095; 1 ♀, pitfall, 2 Aug-4 Sep 1995, QM S39104; ♀, pitfall, 4 Jul-2 Aug 1995, P. Zborowski, QM S39090; 2 ♀♀, pitfall, 6 Mar-5 Apr 1995, P. Zborowski, QM S39091, S39108; 2 ♀♀, pitfall, 1 Dec 1994-3 Jan 1995, P. Zborowski, QM S39121, S39122; 1 ♂, 2 ♀♀, pitfall, 3-4 Feb 1995, P. Zborowski, QM S39089, S39045. 1 ♂, Massey Ck, 12km SW Millaa Millaa, 17°36'S 145°33'E, pitfall, 1 Dec 1993-25 Feb 1994, J. Hasenpusch, QM S31135; 1 ♀, same data but, sieved litter, 4 May 1983, G.Monteith, D.Yeates, QM S31122. 2 ♀♀, Massey Ra,

DIAGNOSIS. Males differ from those of *M. ramboldi* in the more slender median apophysis, spine-like embolus and cluster of bristles retrobasally on palpal tibia; females differ from

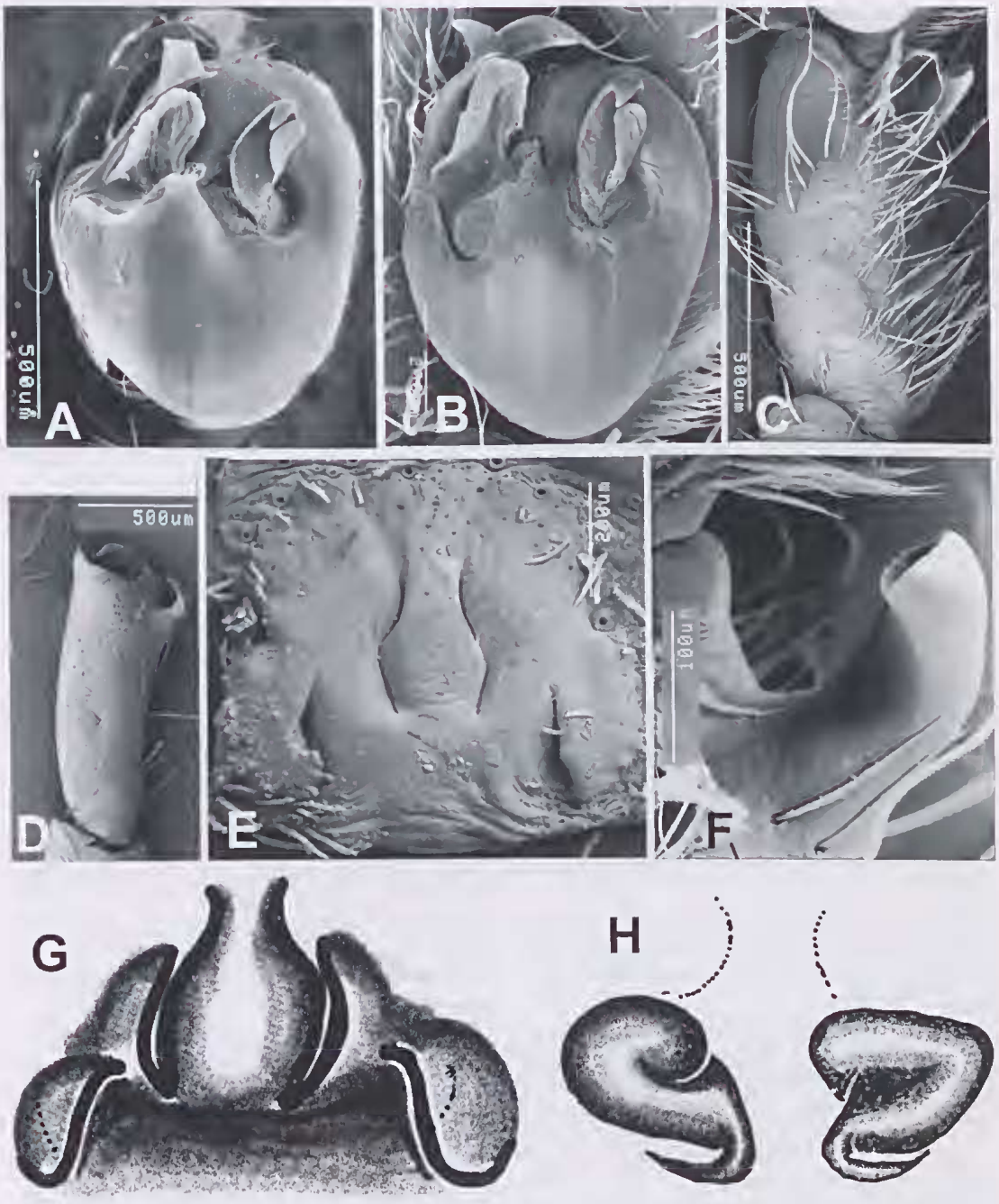

FIG. 12. *Megateg elegans*, sp. nov. A-F, ♂, palpal tibia (C, D), cymbium and bulb (A, B); A, D, E, Massey Range; B, C, F, Boulder Creek. E, ♀, epigyne. F, tibial apophysis. All ventral views. G-H, ♀, QMS 31178; G, epigyne; H, vulva.

those of *M. ramboldi* in having the lateral epigynal grooves further apart than each is from the lateral cleats.

DESCRIPTION. Holotype ♂. Carapace 4.40 long, 3.60 wide. Abdomen 4.00, 2.96 wide. Total length, 8.8.

Colour: carapace & chelicerae orange brown; darker shoulders over boss, striae slightly darker, caput with faint dark lines, in front of fovea a dark triangle directed back. Abdomen yellow brown, dark brown mottled shoulders, light brown mottling breaks predominantly pale abdomen. Legs without mottling, concolorous with carapace, except with darker areas under femur III, IV. Abdomen ventrally mostly pallid with brown flecking darkest around spinnerets. Sternum without pattern.

Carapace: light pile of fine black hairs, not obscuring surface, longer bristles around fovea and on carapace.

Eyes: back eye row much wider and occupies 0.73 of headwidth. Front edge of PLE is just behind back edge of PME, i.e. nominally 3 rows. Eye directions: AME look forward, ahead, slightly up and ca. 30° to side; ALE similar but less up and less to side; PME only up and slightly to side, on mound PLE, to side and back and slightly up. Interspaces: AME:ALE:PME:PLE, 6:8:5:7. AM-AM=5, AM-AL=3, PM-PM=10, PM-PL=13. Group front width: back width: length, 39:53:15.

Chelicerae: p=3 small spaced teeth, r=3-4 spaced teeth.

Legs: scopula absent or at most very thin on tarsi I.

Spines: I: fe pv1 strong, p2d3r3, pa r1, ti p3d3r4v2.2.2.2, me p1v2.2.2. II: fe proventral 1 strong, p2d3r4, pa r1, ti p3d3r3v2.2.2.2, me p2v2.2.2. III: fe p4d3r4, pa r1, ti p2d2r2v2.2.2, me p2d1r1v2.2.2.2. IV: fe p4d3r2, pa r1, ti p2d2r2v2.2.2, me p4r5v2.2.2.2. Palp: fe p1d1r1, rest 0.

Spinnerets: ALS short with coniform tip. PMS short cylindrical. PLS more slender than ALS. All with domed apical segments. Colulus a wide, flat, setose area.

Palp: tibia viewed from below, much longer than wide, straight, with glabrous area in distal ventral third; basal retrolateral edge with oval area of distinct, long, thick bristles; retrolateral tibial apophysis arises subdistally in line with tuft (*i.e.* almost off dorsal face); retrodorsal edge saddle-shaped; apophysis elongate, sinuous. Two rounded flattened keels on distal ventral and prodorsal edges of tibia. *Cymbium*: scoop-shaped, narrows strongly basally with small process flanked by two basal cymbial processes; retrolateral base gradually slopes up to extensive scopulate area extending to tip; retrobasal edge excavate in profile; excavation extends to tip widen cymbial edge pro- than retrolaterally. *Bulb*: tegulum dominant basally; median apophysis a small scoop with small apical hook directed ventrally; embolus arises prolaterally, distinct, long tip just above laminar vane.

TABLE 4. Leg measurements of *Megateg elegans*, holotype male and allotype female.

Male	I	II	III	IV	Palp
Femur	4.08	4.00	3.38	3.69	1.85
Patella	1.38	1.54	1.23	1.15	1.08
Tibia	5.08	4.08	2.61	3.46	1.00
Metatarsus	4.85	3.23	3.00	4.31	-
Tarsus	1.92	1.23	1.23	1.85	1.00
Total	17.31	14.08	11.45	14.46	4.93
Female	I	II	III	IV	Palp
Femur	2.54	2.54	1.85	3.23	1.15
Patella	1.69	1.61	1.15	1.08	0.77
Tibia	2.69	2.38	1.85	2.69	1.00
Metatarsus	2.23	2.23	1.85	3.15	-
Tarsus	0.85	0.92	0.85	1.23	0.92
Total	10.00	9.68	7.55	11.38	5.84

Allotype ♀ QM S31114. As for male except as follows: Carapace 4.72 long, 3.76 wide. Abdomen 5.20, 3.60 wide. Total length, 10.4.

Colour: carapace dark red brown with darker margins, strial margins of caput black; foveal area a dark triangle, dark irregular lines on caput, long brown bands vertically on chelicerae. Legs orange brown with darker areas on femur-metatarsi; strongly marked (not banded) areas on ventral femora, coxae & sternum. Abdomen dorsally mottled brown & black, anteriorly an elongate brown dome fringed with black then pallid borders posteriorly merging into dark chevrons on either mottling; ventrally predominantly mottled.

Carapace: pile of golden hairs not obscuring cuticle plus uniformly placed short black setae centrally around fovea, onto caput and amongst eyes.

Chelicerae: p=3-4, r=3-4.

Eyes: AME:ALE:PME:PLE, 5:6:5:6. Eye group front width: back width: length, 37:47:20. Interspaces: AME-AME, 1.0; AME-ALE, 0.6; PME-PME, 2.4; PME-PLE, 1.5.

Legs: trochanteral notches shallower than in male, asymmetrical-deeper in back of notch than in front; tarsal rod present; scopula weak on tarsi I, II, distal 1/3 and weak on metatarsi I, II.

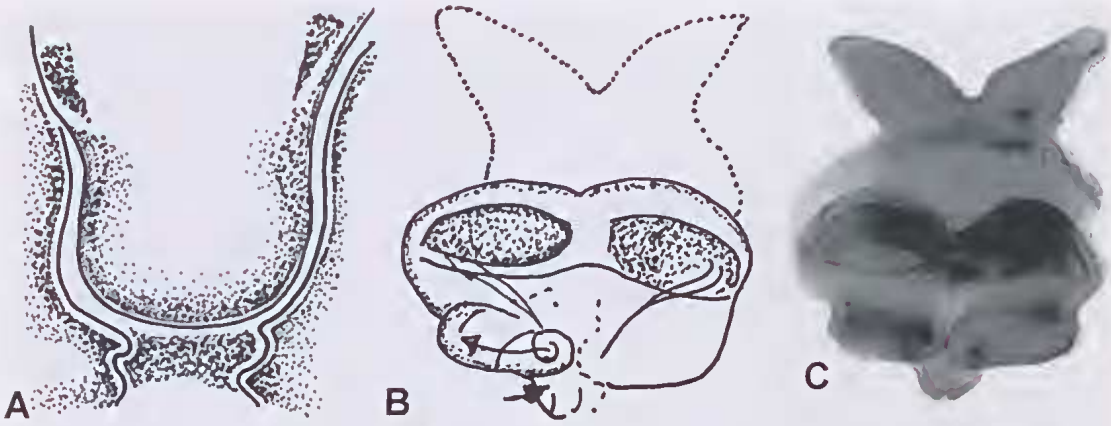

FIG. 13. *Megateg gigasep*, sp. nov., ♀. A, epigyne; B, C, vulva.

Spines: I: fe pv1p1d2r1; pa0;ti v2.2.2.2; me v2.2.2. II: fe p2d3r1, rest as for I. III: fe p3d3r2; pa r1; ti p2d2r2v2.2.2; me p4r4v2.2.2. IV: fe p2d2r1; pa r1; ti p2d2r2v5; me p4r4v2.2.2. Palp: fe p1d2; pa0; ti p2d1; ta d1p3.

Claws: legs as in male. Palpal claw with 3-4 teeth.

Epigyne: small, lightly selerotised with pair of narrow ereseent hoods, one pair outer and near furrow, one pair inner and eentral, a narrow medial ridge posteriorly. Vulva simply s-shaped.

DISTRIBUTION AND HABITAT. A relatively widely distributed speeies in rainforest from Cape Tribulation south to about Ravenshoe, NE Qldland. *M. elegans* is the lowland sister speeies of *M. ramboldi*, known only from Bellenden Ker Range and Mt Bartle-Frere, the highest peaks of the Wet Tropies World Heritage Area.

REMARKS. Material from Upper Boulder Ck, Walter Hill Range, are exeluded from the type series; geographieally, they represent the southern most known extent of the speeies. The epigyne is most like that of *M. elegans* with extensive lateral eleats overlapping strongly with lateral ridges. The tibial apophysis, like that of *M. elegans*, has a retrobasal setal eluster. However, the embolus is intermediate between the spike of *M. elegans* and broad sheath of *M. ramboldi*.

TABLE 5. Leg measurements of *Megateg gigasep* sp. nov. holotype female.

	I	II	III	IV	Palp
Femur	2.69	2.63	2.50	3.25	1.44
Patella	1.56	1.38	1.25	1.38	0.75
Tibia	2.50	2.19	1.69	2.69	0.88
Metatarsus	2.00	1.81	2.13	3.56	
Tarsus	0.81	0.81	1.31	1.31	1.06
Total	9.56	8.82	8.63	12.19	4.13

Megateg gigasep, sp. nov.
(Figs 4, 13; Table 5)

ETYMOLOGY. An arbitary combination of letters.

MATERIAL. HOLOTYPE: ♀, Karnak to Devils Thumb (site 4), 8-12km NW Mossman, 16°23'S 145°17'E, 26 Dec 1989-15 Jan 1990, ANZSES expedition, QMS53563.

DIAGNOSIS. Females have the broadest septum of the genus.

DESCRIPTION. Holotype ♀ QM S53563. Carapaee 4.45 long, 3.32 wide. Abdomen 5.32 long, 3.64 wide. Like *Megateg lesbiae* but:

Colour: carapaee yellow brown with black edges, blaek areas between fovea and edge and triangular black foveal area. Abdomen dorsally mottled , ventrally pallid with irregular grey zones medially. Legs fawn, femora with dark transverse bars forming two pallid bands.

Spines: tibiae I, II with 4 spines pro- and retro-ventrally on I, II.

Spinnerets: large, triangular, fleshy eolulus; 3 large spigots evident dorsally on PMS.

Epigyne: broad, rounded median septum with two lateral triangular 'ears' anteriorly; lateral eleats impinge on posterior margin of septum; vulva consists of two flattened spheres on eaeh side.

DISTRIBUTION AND HABITAT. Montane rainforest between Karnak and Devils Thumb, NW of Mossman, NE Qld.

TABLE 6. Leg measurements of *Megateg lesbiae*, holotype female.

	I	II	III	IV	Palp
Femur	2.31	2.54	2.31	2.85	1.31
Patella	1.31	1.15	1.00	1.08	0.61
Tibia	2.31	2.15	1.69	2.38	0.85
Metatarsus	1.92	1.77	1.85	3.08	0.77
Tarsus	0.69	0.77	0.69	0.92	
Total	8.54	8.38	7.54	10.31	3.54

Megateg lesbiae, sp. nov.
(Figs 4, 14; Table 6)

ETYMOLOGY. For Lesbia Dobson, staunch supporter of the Queensland Museum.

MATERIAL. HOLOTYPE: ♀, Upper Gayundah Ck, Hinchinbrook I, 18°22'S 146°13'E, NEQLD, rainforest at 10m altitude, 9-11 Nov 1984, G Monteith, D. Cook, QM S31160. PARATYPES: 2 ♀♀, same data, QM S31123.

DIAGNOSIS. Females have the most subtle epigyne of the genus — a broad flat plate with two small lateral cleats and a medial indistinct pair of transverse ridges.

DESCRIPTION. Holotype ♀. Carapace 4.40 long, 3.56 wide. Abdomen 3.68, 3.20 wide. Total length, 4.2.

Eyes: AME:ALE:PME:PLE, 8:15:8:14. Eye group front width: back width: length, 65:90:40. Interspaces: AME-AME, 1.3; AME-ALE, 0.8; PME-PME, 2.8; PME-PLE, 1.0.

Chelicerae: p=3, r=3.

Spines: I: fe pv1p1d2; pa 0; ti v2.2.2.2; me v2.2.2. II: fe p2d3r1; pa 0; ti v2.2.2.2. me v2.2.2. III: fe p3d3r1; pa r1; ti p2d2r2v2.2.2. me p5r5v2.2.2. IV: fe p3d3r1; pa r1; ti p2d2r2v2.2.2; me p5r6v7. Palp: fe p1d2; pa 0; ti p2d1; ta p3.

Legs: no scopula on tarsi I, II.

Epigyne: originally covered by thin and hirsute (from cymbial scopula?) epigynal plug; a broad, wide central depression with very widely set small crescentic cleats laterally between which a pair of indistinct transverse ridge marking copulatory fossae; simple, ovoid spermathecae with fertilisation duct posteriorly.

DISTRIBUTION AND HABITAT. Lowland (10m) rainforest at Upper Gayundah Ck, Hinchinbrook Island, NE Qld.

Megateg paulstumkati, sp. nov.
(Figs 4, 5C, 6E, 15, 16, 17; Table 7)

ETYMOLOGY. For Paul Stumkat, Senior Technician, Queensland Museum, 1984-2002.

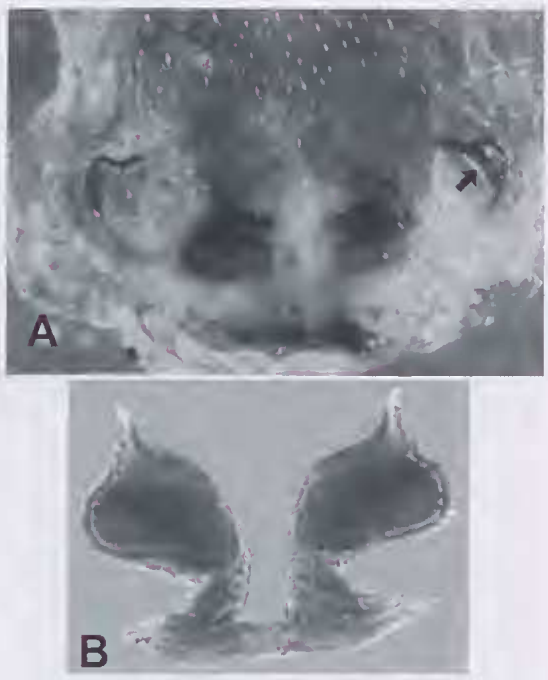

FIG. 14. *Megateg lesbiae*, sp. nov., ♀. A, epigyne; B, vulva.

MATERIAL. HOLOTYPE: 1 ♂, Devils Thumb to Paul's Luck Site 12, 16°23'S 145°17'E, NEQLD, pitfall, 27 Dec 1989-15 Jan 1990, ANZSES expedition, QM S31171. PARATYPES: Karnak-Devils Thumb, 8-12km NW Mossman, 16°23'S 145°17'E, 26 Dec 1989-15 Jan 1990, ANZSES expedition: 1 allotype ♀, Site 9, QM S31172; 3 ♂♂, site 7, QM S31188; 2 ♂♂, Site 8, QM S31185; 1 ♂, Site 9, QM S31187; 2 ♂♂, site 9a, QM S31186; 5 ♂♂, QM S31173. 1 ♂, Devils Thumb, 12km WNW Mossman. Site 11, 16°23'S 145°17'E, pitfall, 27 Dec 1989-15 Jan 1990, ANZSES expedition, QM S25897. 2 ♂♂, Mt Spurgeon, 16°24'S 145°13'E, rainforest, pitfall, 15-20 Oct 1991, G.Monteith, H.Janetzki, D.Cook, L.Roberts, QM S20516; 3 ♂♂, Mt Spurgeon, 7km N of (camp 2), 15°28'S 145°13'E, pitfall, 17-19 Oct 1991, G. Monteith, D. Cook, L. Roberts, QM S31189. All in NEQld.

DIAGNOSIS. Females differ from those of *M. elegans* in the bowed (in ventral view) palpal tibia with distinctly pointed RTA; females differ in that the epigyne lacks lateral cleats and unlike in *M. covacevichae* the short epigynal ridges are as wide apart anteriorly as posteriorly.

DESCRIPTION. Holotype ♂. Carapace 4.32 long, 3.60 wide. Abdomen 3.80, 2.64 wide. Total length, 8.2.

Eyes: AME:ALE:PME:PLE, 10:13:8:12. Eye group front width: back width: length, 60:76:36. Interspaces: AME-AME, 0.7; AME-ALE, 0.5; PME-PME, 1.7; PME-PLE, 1.2. Centres of ALE

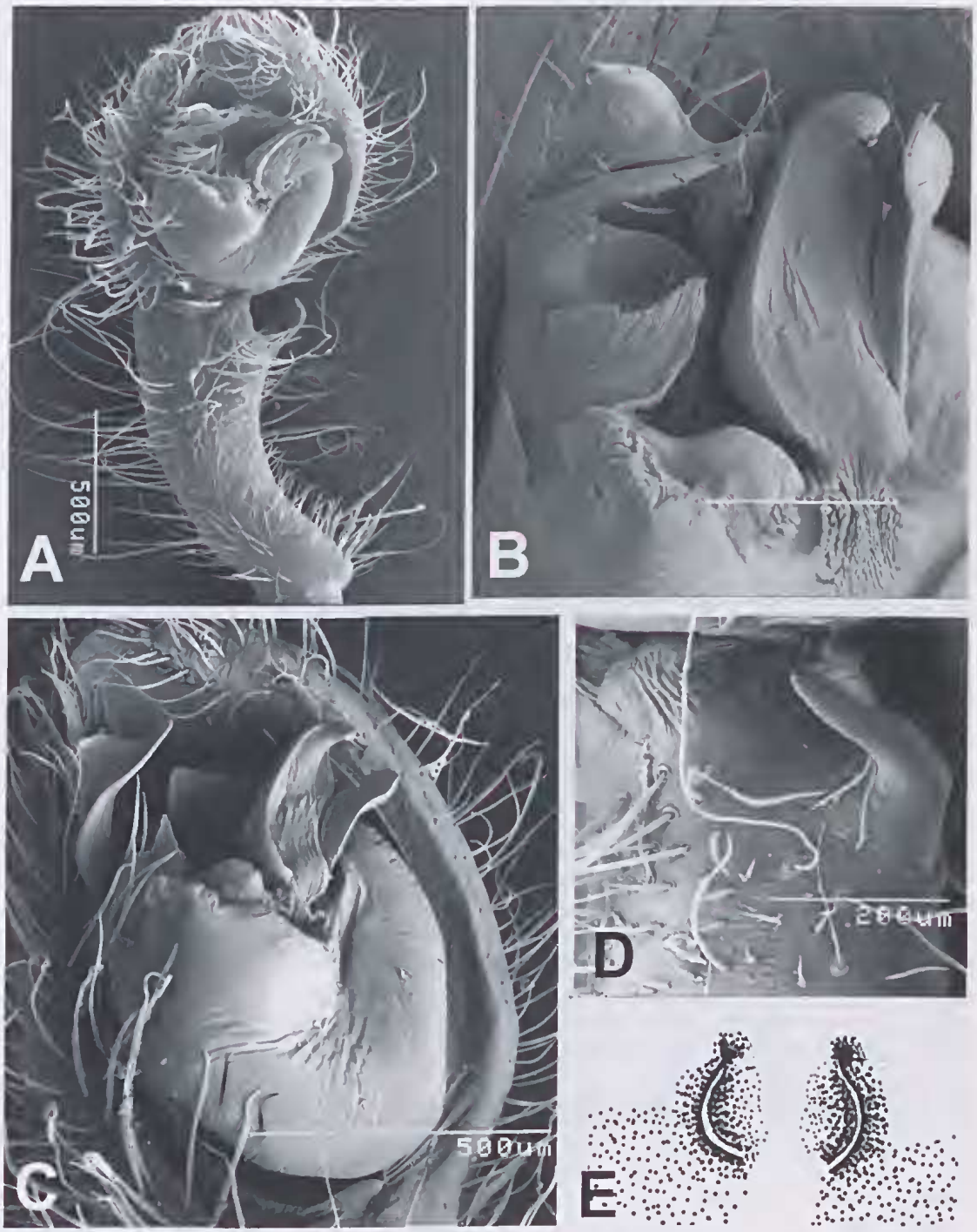

FIG. 15. *Megateg paulstumkati*, sp. nov., ♂ palpal tibia, cymbium and bulb (B, C), ventral (A-C) and tibial apophysis, retrolateral view (D); E, ♀ epigyne.

just behind back edge of AME. Front edge of PLE is in line behind back edge of PME.

Chelicerae: p=3, r=3.

FIG. 16. *Megateg paulstumkati*, sp. nov., ♀. A, epigyne; B, vulva.

Spines: I: fe pvI strong, p2d3r4; pa rl; ti p3d3r3v2.2.2.2; me v2.2.2 . II: fe pv1 weak, p3d2r3; pa r1; ti p3d3r3v2.2.2.2: me p4r3v2.2.2. III: fe p4d3r4; pa r1; ti p2d2r3v2.2.2; me p3d1r3v2.2.2. IV: fe p4d3r3; pa r1; ti p2d2r2v.2.2.2; me p4r5v8. Palp: fe p1d2r1.

Legs: scopula absent; tibial fracture I-IV prolaterally and retrolaterally distinct. Trochanteral notches shallow, deeper in back of notch to front.

Palp: tibia much longer than wide bowed with retrolateral saddle; cluster of short hairs on retrobasal mound, diagonally opposite face glabrous; 3 distinct sclerotised collars distally. Tibial apophysis a long, elegant, tapering hook.

TABLE 7. Leg measurements of *Megateg paulstumkati*, holotype male and allotype female.

Male	I	II	III	IV	Palp
Femur	3.61	3.61	2.69	3.92	1.85
Patella	1.54	1.69	1.23	1.46	0.85
Tibia	4.92	4.00	3.00	3.54	0.77
Metatarsus	4.92	3.92	2.69	4.61	0.85
Tarsus	1.85	1.69	1.38	1.77	
Total	16.84	14.91	10.99	15.30	4.32
Female	I	II	III	IV	Palp
Femur	2.85	2.92	2.54	3.08	1.46
Patella	1.46	1.31	1.08	1.31	0.61
Tibia	2.92	2.31	1.92	2.46	0.85
Metatarsus	2.31	1.92	2.23	3.15	0.92
Tarsus	0.69	0.92	1.00	1.61	
Total	10.23	9.38	8.77	11.61	3.84

Cymbium: scopula extends for 2/3. From above (dorsal), small triangular process basal retrolaterally forming saddle opposing spur and rounded mound on prolateral side; basodorsal process absent: paracymbial discontinuity a slight bulge evident basally. *Bulb*: median apophysis a long, wide scoop tapering to simple point; basally a hyaline flange with sclerotised basal edge; base irregular, small. Embolus sigmoidal with hyaline scoop along upper (inner edge) distally. Two hyaline opposed processes arise from base of embolus.

Allotype ♀ QMS31172. As for male except as follows. Carapace 4.80 long, 3.96 wide. Abdomen 5.68, 4.48 wide. Total length, 10.8.

Eyes: AME:ALE:PME:PLE, 11:13:8:12. Eye group front width: back width: length, 50:97:39. Interspaces: AME-AME, 1.0; AME-ALE, 1.0; PME-PME, 2.3; PME-PLE, 1.3.

Spines: I: fe pv1 strong, p1d2r1; pa 0; ti v2.2.2.2; me v2.2.2. II: fe p2d3r1; pa 0; ti v2.2.2.2: me v2.2.2. III: fe p3d3r2; pa r1; ti p2d2r2v5; me p5r5v2.2.2. IV: fe p2d3r1; pa r1; ti p2d2r2v5; me p5r4v6. Palp: fe d3; pa 0; ti p2d2: ta p3d1r1.

Scopula: tarsi I, II weak/absent. Metatarsi I, II in distal 1/3, weak/absent.

Epigyne: externally two lobes with ereseentric ridges and medial flat septum; copulatory fossae are anterior lateral of septum and duets are slenderly biconvex in eross-seetion with narrowest dimension in vertieal plane joining spermathecae dorsally; spermathecae reniform.

Abdomen: eolulus broad, triangular, fleshy.

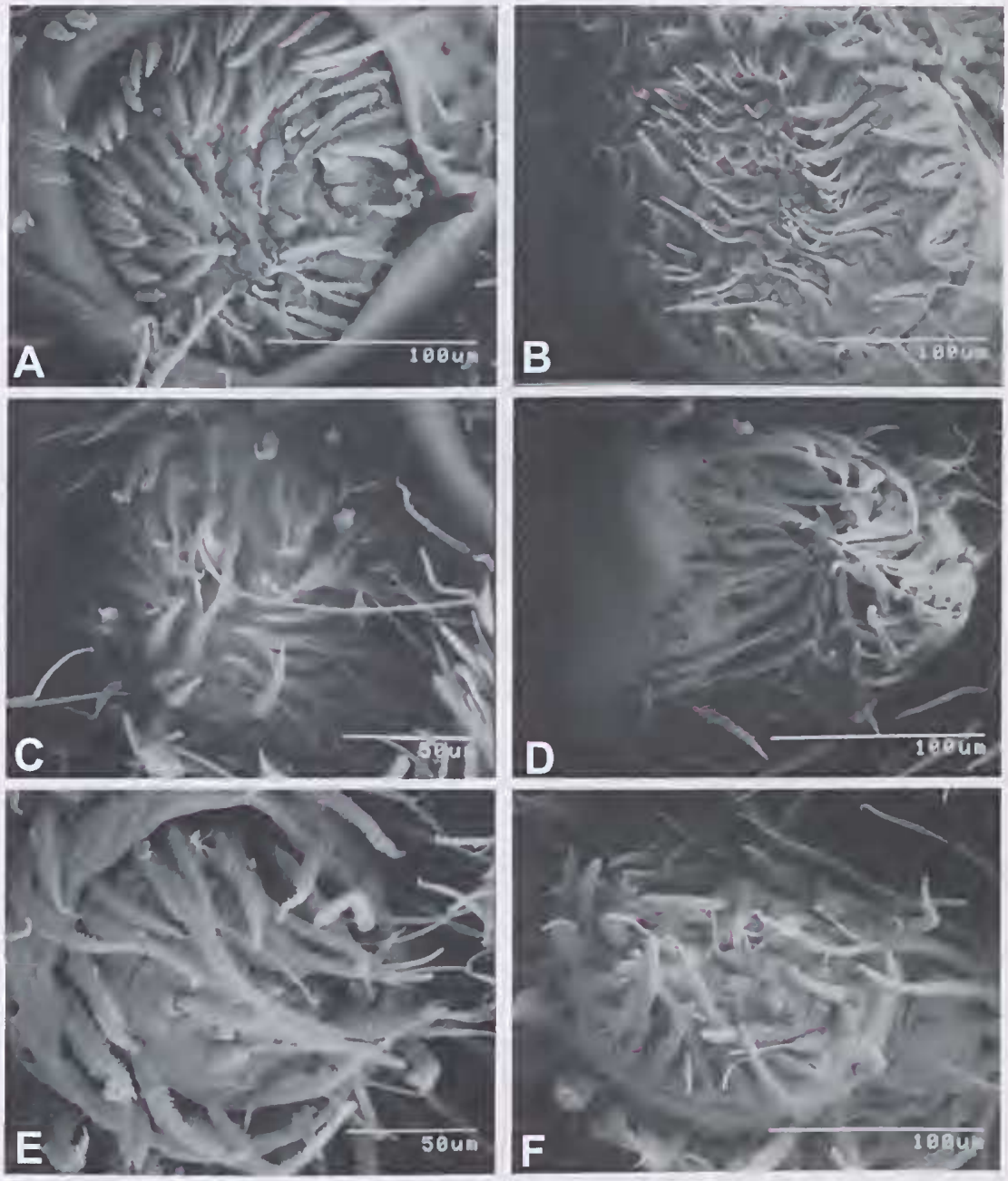

FIG. 17. Spinnerets, *Megateg paulstumkati*, sp. nov., scanning electron micrographs, apical view. A, C, E, ♂ QM S31189; B, D, F, ♀ QM S31155. A, B, ALS; C, D, PMS. E, F, PLS.

DISTRIBUTION AND HABITAT. High altitude (>700m) rainforest, Karnak to Devils Thumb, 8-12km NW of Mossman and Mt Spurgeon, NE Qld.

Megateg spurgeon sp. nov.
(Figs 4, 6D,F, 18, 19; Table 8)

ETYMOLOGY. From the type locality.

MATERIAL. HOLOTYPE: ♂, Mt Spurgeon, 2.5km S, 16°28'S 145°12'E, open forest, pitfall, 13-21 Oct 1991, G

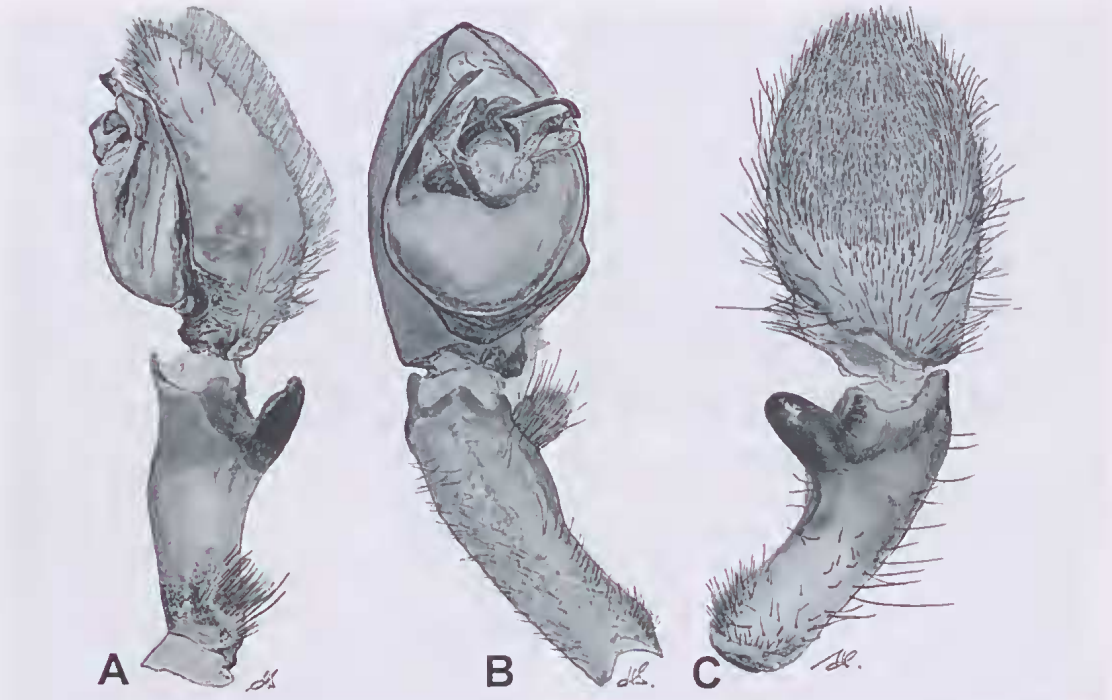

FIG. 18. *Megateg spurgeon*, sp. nov., ♂, palpal tibia, cymbium and bulb; retrolateral (A), ventral (B), dorsal (C) views.

Monteith, H. Janetzki, QM S31148. PARATYPES: 3 ♂♂ 1 ♀, Black Mt, 16°39'S 145°29'E, 29-30 Apr 1982, G Monteith, D. Yeates, D. Cook, QM S31155, 31149; 1 ♂, as for holotype, S31157; 1 ♀, 2 ♂♂, Mt Spurgeon, 3km S, 16°27'S 145°11'E, NEQLD, open forest, human dung trap, 20-22 Nov 1997, G Monteith, D. Cook, QM S41840, S43995, S44748; 1 ♂, Mt Spurgeon (trap 6), open forest, pitfall, 19 Nov 1997-8 Feb 1998, G Monteith, D. Cook, QM S44659.

DIAGNOSIS. Males resemble those of *M. bartholomai* but differ in lacking the thorn basally on the embolus (Fig. 18B), having relatively longer palpal tibia with distally concave RTA and weaker retrobasal constriction in the cymbium; females resemble those of *M. covacevichae* in the convergent median septum but differ in having lateral epigynal cleats.

DESCRIPTION. Holotype ♂. Carapace 4.61 long, 3.56 wide. Abdomen 3.33, 2.67 wide. Total length, 8.5.

Colour in alcohol. Carapace orange brown with dark shadows on margin and dark radiating interwoven bands centrally. Eye region not darker. Abdomen dorsally with irregular longitudinal dark streaking broken anteriorly by 2 pairs of large sigilla surrounded by pallid zone. Anterior plate triangular, distinct dark orange-brown. Legs yellow brown with dark shadows on distal femora forming irregular wide nads ventrally; dark shadows also on distal tibiae. Coxae dorsally yellow brown, ventrally also with shadows distally. Abdomen ventrally mottled; chelicerae orange brown with wide dark median shadows.

Carapace. Uniformly hirsute with fine white hairs with small brown bristles along caput and through eye group. Chilum divided. Fovea long, deep. Eyes on common tubercle overhanging eye group.

Chelicerae. Slender but fangs long; p=2, r=3.

Eyes. AME:ALE:PME:PLE, 8:9:6:9. Eye group front width: back width: length, 40:56:28. Interspaces: AME-AME, 0.6; AME-ALE, 0.5; ALE-PLE, 1.3; PME-PLE, 1.9; PME-PME, 0.8.

Legs. All tibiae widely fractured. Trichobothria: two rows on tibiae for length; one straight row, lengthening distally on metatarsi and two rows on tarsi.

Spines. I: fe pv1p2d3r4; pa r1; ti p3d3r3v2.2.2.2; me p3r3v2.2.2. II: fe pv1p3d3r4; pa r1; ti p3d3r3v2.2.2.2; me p3r3v2.2.2. III: fe pv1p3d3r3; pa r1; ti p2d2r2v2.2.2; me p1.2.2r12.1.2v2.2.2. IV: fe p4d3r3; pa r1; ti

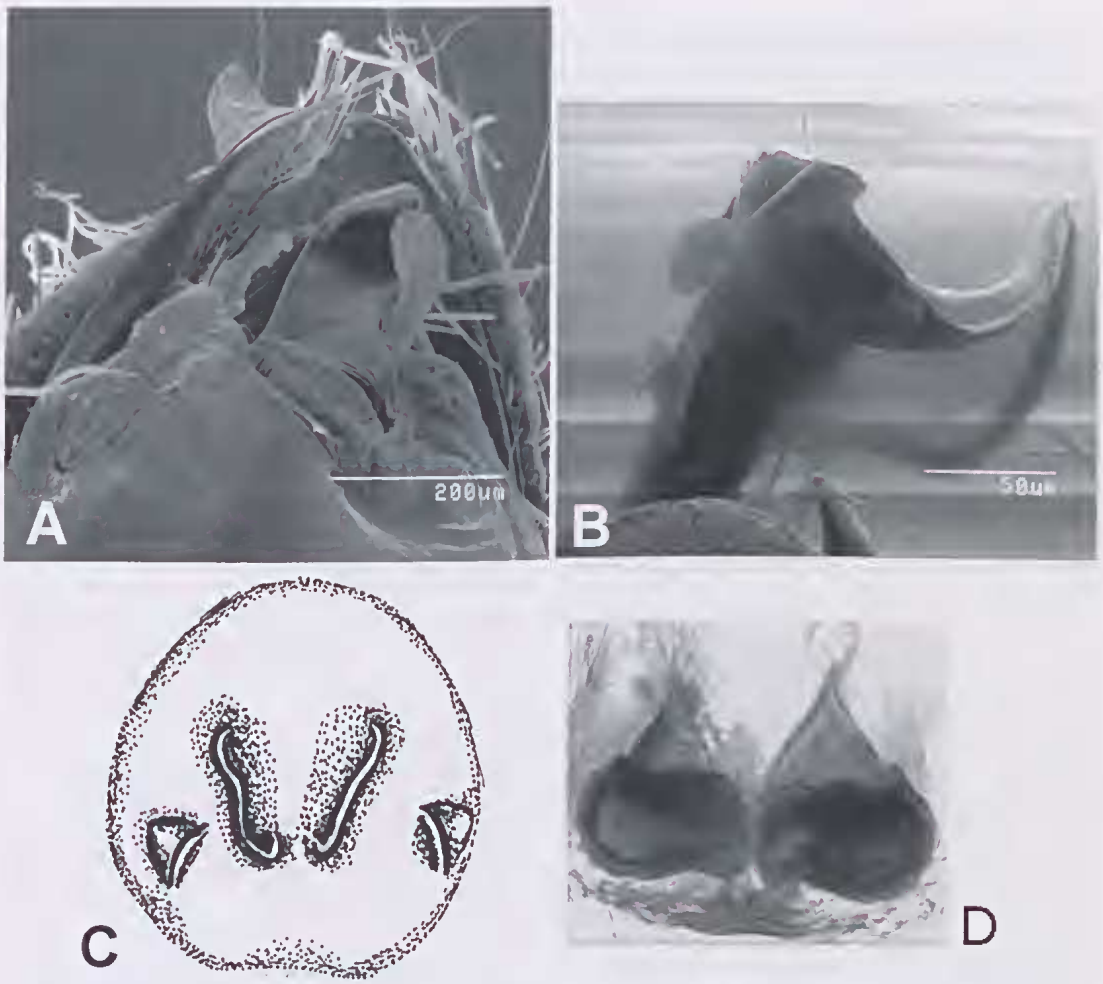

FIG. 19. *Megateg spurgeon*, sp. nov.. A, B, ♂ bulb; apical bulb, ventral view; B, embolus, axial view. C, D, ♀ QM S31148 . C, epigyne; D, vulva.

p2d2r3v2.2.2; me p1.1.1.2r2.2.2v2.2.2. Palp: fe p1d1.2; rest, 0. Most basal spine on tibiae I, II proximal of fracture.

Claws. Short, with 3-4 large teeth. Small dense tufts below claws.

Abdomen. Anterior overhang with sclerotised plate with two wide circular pits.

Spinnerets. Invaginated.

Palp (Figs 18A-C, 19A,B). Tibia distinctly bowed, long, with large, heavy, subdistal-lateral RTA with concave distal face; cluster of long strong bristles retrobasally; tibia with two distal rounded lobes proventrally and dorsally. Cymbium basally with small locking process on dorsal edge arising from darkly sclerotised glabrous area. Retrobasal corner with rounded lobe. Retrolateral basal third distinctly narrow with broad glabrous edge and distally marked by distinct discontinuity. Apical cymbium narrowly truncate but with wide gap between edges. Tegulum basally dominant, broad, sclerotised; distally with long keel behind median apophysis and embolus. Spermatic duct sweeps from distoretrolateral edge around base to embolus. Median apophysis small, roughly triangular, narrowly attached and hence very mobile, with rolled distal edge forming rounded distal hook; with small membranous lamella along posterior edge. Embolus a long paddle with basal thorn, distinctly paddle-like with small dorsal semicircular vane. A scooped V-shaped vane at

TABLE 8. Leg measurements of *Megateg spurgeon* sp. nov. holotype male and allotype female.

Male	I	II	III	IV	Palp
Femur	3.94	3.94	3.28	4.11	2.11
Patella	1.72	1.44	1.33	1.44	0.94
Tibia	4.89	3.78	2.56	3.61	1.39
Metatarsus	4.94	3.67	3.17	4.50	
Tarsus	2.28	1.56	1.61	1.61	1.28
Total	17.77	14.39	11.56	15.27	5.72
Female	I	II	III	IV	Palp
Femur	2.78	2.89	2.78	3.56	1.50
Patella	1.67	1.56	1.28	1.56	0.89
Tibia	2.61	2.22	1.78	2.89	0.89
Metatarsus	2.17	2.00	2.06	3.33	
Tarsus	0.78	0.89	1.22	1.22	1.11
Total	10.01	9.56	8.84	12.56	4.39

base of embolus but not attached to it; small triangular vane between embolus and median apophysis.

Allotype ♀. Carapace 4.44 long, 3.50 wide. Abdomen 5.44, 4.17 wide. Total length, 11.0.

Colour in alcohol. Carapace like male but orange brown with more extensive darker areas. Abdomen dorsally with darker shoulders, lighter mottling and 3 dark chevrons posteriorly. Legs orange brown with darker femora distally and ventrally; dark bands on lateral patellae to metatarsi; coxae ventrally dark distally. Dark shadow centrally on sternum.

Eyes. AME:ALE:PME:PLE, 9:12:8:12. Eye group front width: back width: length, 60:89:39. Interspaces: AME-AME, 1.0; AME-ALE, 0.7; ALE-PLE, 2.1; PME-PLE, 2.4; PME-PME, 1.4.

Chelicerae. p=2, r=3.

Legs. Scopula weak, laterally in two bands on metatarsi and tarsi I, II. *Trichobothria*: two rows on tarsi.

Spines. Strong proventral femoral spine. I, II: fe pvIpId2r2; pa0; ti v2.2.2.2; me v2.2.2. III: fe p3d3r2; pa0; ti p2d2r2v2.2.2; me p1.1.1.2dIr1.1.2v2.2.2. IV: fe p3d3rI; pa r1; ti p2d2r2v2.2.2; me p1.1.1.2.rI.2.2v2.2.2. Palp: fe d1.2; pa0; ti p2dI; ta p2.I.

Claws. Palpal claw long, 6-8 long teeth.

Spinnerets. All on protuberant base. Spigots on PMS only distal, not dorsal.

Epigyne (Fig. 19C,D). A pair of shallow grooves define low but strongly V-shaped septum with very low, indistinct, cleats off posterior lateral corner and set at about half-length of lateral ridges. Copulatory fossae are longitudinal slits with long wide flared connection to each small medially constricted spermatheeae.

DISTRIBUTION AND HABITAT. High altitude rainforest at Mt Spurgeon and Black Mountain, NE Qld.

Krukt, gen. nov.

TYPE SPECIES. *Krukt piligyna* sp. nov.

ETYMOLOGY. An arbitary combination of letters; the gender is female.

DIAGNOSIS. Very similar in somatic morphology to *Megateg* but differs in that males have a short palpal tibia, a small retrobasal tegulum, relatively long basal embolus, conical basodorsal process on cymbium, and in females the epigyne is a narrow scape with large raised lateral cleats; the copulatory duct folds posteriorly then anteriorly, flattens and passes close to ventral surface folding and twisting posteriorly into a flat collariform spermatheca on each side.

The synapomorphy of *Krukt* is the basodorsally narrowed cymbium.

DESCRIPTION. As for *Megateg* except:

Epigyne: with large broad raised median septum and lateral cleats basally; a longitudinal copulatory fossae leads directly to small simple posterior spermatheeae.

Male Palp: tibia as long as wide; tibial apophysis is retrodorsal (base not visible from ventral view). *Cymbium*: scopula extends over distal half; retrobasal corner with deep cutaway area both soft and pallid, forming basal edge directed at tibial apophysis; viewed retrolaterally bilobed with basal incursion; dorsally basal cymbium strongly narrowed, basally with heel; sclerotised ridge prolaterally with *ca.* 1/3 of base; basodorsal process a rounded heel; paracymbial discontinuity absent but pallid glabrous cutaway. *Bulb*: median apophysis a large hook, hooked portion *ca.* half total length extends to adjacent to base of median apophysis; base irregular, small. Embolic origin very broad tapering quickly and wide, not filiform to tip. Conductor absent; small, thin, foliate paraembolic lamina in all species and adjacent membranous tegular process.

Spinnerets: females with two lines of spigots dorsally on PMS; males have three large spigots apically. ALS with two large contiguous spigots entally and a field of 20 smaller elsewhere.

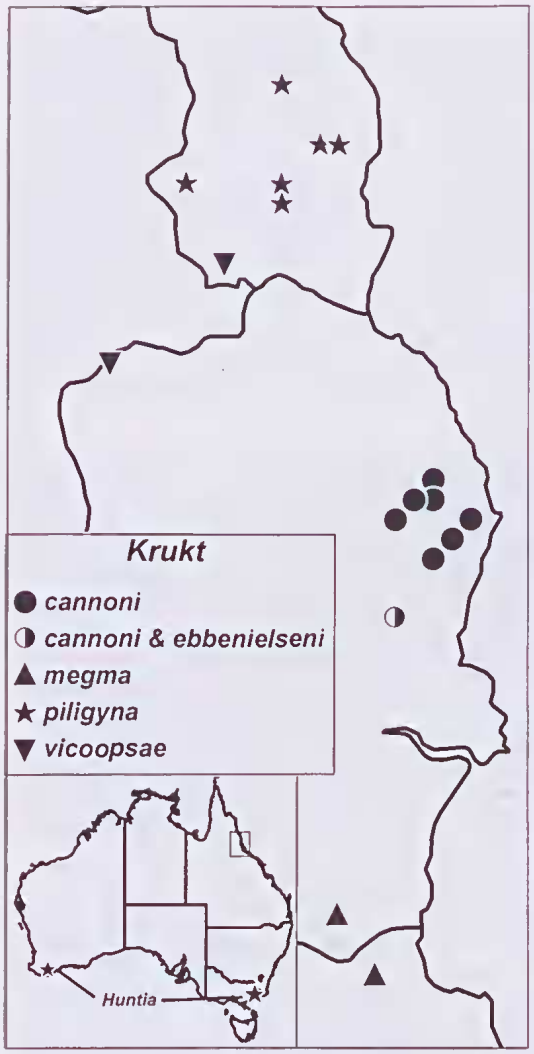

FIG. 20. *Krukt* and *Huntia*, distribution map.

INCLUDED SPECIES. *K. cannoni*, sp. nov.; *K. ebbenielseni*, sp. nov.; *K. megma*, sp. nov.; *K. piligyna*, sp. nov.; *K. vicoopsae*, sp. nov.

DISTRIBUTION AND HABITAT. Montane rainforest in the Wet Tropics World Heritage Area of North Queensland.

RELATIONSHIPS. In males of *Krukt*, up to 2 embolic lamina (*K. piligyna*, *K. ebbenielseni*) are present; males of *Megateg*, have up to 3 (see Characters) so the more numerous condition in *Krukt* is taken to be plesiomorphic. In the other three species (*K. cannoni*, *K. megma*, and *K. vicoopsae*), only one embolic lamina is present and in *K. megma* it is very tiny. That reduced number of lamina is taken to be apomorphic and shares the same distribution as the conical form of the basodorsal process on the male palpal cymbium. The cladogram then for *Krukt* is: (*K. gigasep-K. piligyna- K. ebbenielseni* (*K. cannoni-K. megma-K. vicoopsae*)).

KEY TO SPECIES OF *KRUKT*

Males

1. Cymbium with basodorsal process (Figs 25A,B, 32B,D) . 2
   Cymbium basodorsally rounded or truncate (Fig. 28A) . 4
2. Basodorsal process on cymbium distinctly curved in dorsal view (Fig. 25A). . . . . *K. cannoni*
   Basodorsal process on cymbium straight in dorsal view (Fig. 30A) 3
3. Median apophysis with small apical hook and small retrobasal process (Fig. 32A,B) . . . . . *K. vicoopsae*
   Median apophysis large, dominated by hook (Fig. 29A) . . . . . *K. megma*
4. Tegulum with extensive unsclerotised area and extends posteriorly over tibia (Fig. 28C, D) . . . *K. ebbenielseni*
   Tegulum with small unsclerotised area and lies within cymbium (Fig. 23A,B) . . . . . *K. piligyna*

Females (based on epigyne, females of *K. ebbenielseni* unknown)

1. Median scape clearly constricted anteriorly (Fig. 26D). 2
   Median scape not constricted anteriorly (Fig. 24A) . . 3
2. Cleats lateral of scape (Fig. 26D). . . . . *K. cannoni*
   Cleats posterior to scape (Fig. 13A) . . *Megateg gigasep*
3. Scape very wide, cleats lateral of scape (Fig. 29D, 31A, C) . . . . . *K. megma*
   Scape narrow, cleats posterior and lateral of scape (Fig. 24A). 4
4. Scape narrow, hirsute (Fig. 24A). . . . . *K. piligyna*
   Scape with large lateral fold; scape widely divided medially (Fig. 32C) . . . . . *K. vicoopsae*

Krukt piligyna sp. nov.
(Figs 3E, 20-24, 32E; Table 9)

ETYMOLOGY. Latin, hirsute (*pili*), genitalia (*gyna*) alluding to the diagnostic hirsute scape of females.

MATERIAL. HOLOTYPE: 1 ♂, Mt Finnigan, 15°49'S 145°17'E, NEQ, under rocks, 9 Nov 1974, L. Roberts, V.E. Davies, J. Covacevich, QM S31166. PARATYPES. Allotype: 1 ♀, as for holotype but, L. Roberts, V.E. Davies, QM S31167. Mt Finnigan, 15°49'S 145°17'E, 1110m, rainforest: 1 ♀, as for S31167, QM S31168; 5 ♂♂ 3 ♀♀, pitfall, 28-30 Nov 1985, G.Monteith, D.Cook, QM S32963; 1 ♂ 2 ♀♀, sieved litter, 21 Apr 1982, G.Monteith, D.Yeates, D.Cook, QM S32962; 1 ♂, summit, pitfall, 3-5 Dec 1990, D. Cook, G. Thompson, L. Roberts, QM S32964; 2 ♂♂, summit, 28-30 Nov 1985, G. Monteith, D. Cook, L. Roberts, QM S32966; 1 ♂, pitfall, 19-22 Apr 1992, G.Monteith, D.Yeates, D.Cook, QM S32965; 1 ♂ 2 ♀♀, site 2, 15°48'S 145°17'E, pitfall, 4 Dec 1990-17 Jan 1991, Qld Museum & ANZSES, QM S32970; 1 ♂ 2 ♀♀, site 3, 15°48'S 145°17'E, pitfall, 4 Dec 1990-17 Jan 1991, QM ANZSES, QM S32095; 2 ♂♂ 6 ♀♀, site 4, 15°48'S

145°17'E, pitfall, 4 Dec 1990-17 Jan 1991, QLD Museum & ANZSES, QM S32971; 1 ♂ 1 ♀, site 5, pitfall, 4 Dec 1990-17 Jan 1991, QLD Museum & ANZSES, QM S32969; 4 ♂♂ 4 ♀♀, sieved litter, 30 Nov 1985, GMonteith, D.Cook, QM S31161; 1 ♂ 2 ♀♀, site 3, 15°48'S 145°17'E, pitfall, 4 Dec 1990-17 Jan 1991, QM ANZSES, QM S31162; 1 ♂ 1 ♀, stick brushing, 21 Nov 1998, G Monteith, QM S49954; 1 ♂ 1 ♀, same data, QM S49958. Big Tableland, 15°43'S 145°17'E, A.N.Z.S.E.S. expedition: 1 ♂ 1 ♀, flight intercept trap, 20 Dec 1990-8 Jan 1991, QM S32968; 1 ♀, same data, QM S32967; 5 ♂♂, pitfall, 20-21 Dec 1990, QM S31163,4; 3 ♂♂ 1 ♀, same data but, site 5, 16°39'S 145°34'E, pitfall, 20 Dec 1989-15 Jan 1990, QM S31132, 31131. 1 ♂, Mt Sampson, 15°48'S 145°12'E, pitfall, 27 Dec 1990-19 Jan 1991, A.N.Z.S.E.S. expedition, QM S31130; 2 ♀♀, Mt Hartley, 15°46'S 145°20'E, 6 Nov 1974, J.Covacevich, D.Joffe, V.E.Davies, QM S32961; 1 ♂, same data but pitfall, 8 Dec 1993-2 Feb 1994, L.Roberts, QM S31165; 2 ♂♂, same data but 8 Nov 1995-17 Jan 1996, G Monteith, D. Cook, L. Roberts, QM S43950. All in northeastern Queensland.

DIAGNOSIS. Males differ from those of all other species in the deep retrobasal groove on the cymbium (Fig. 23B); females differ from those of all other species in the narrow hirsute epigynal scape (Fig. 23D).

DESCRIPTION. Holotype ♂ QM S31166. Carapace 3.72 long, 2.96 wide. Abdomen 2.92, 2.16 wide. Total length, 6.8.

Eyes: AME:ALE:PME:PLE, 9:11:7:11. Eye group front width: back width: length, 47:69:31. Interspaces: AME-AME, 0.7; AME-ALE, 0.2; PME-PME, 1.9; PME-PLE, 1.2.

Chelicerae: p=3, r=3.

Spines: I: fe pv1 strong, p1d3r3; pa r1; ti p3d3r3v2.2.2.2; me p2r2v2.2.2. II: fe p2d3r3; pa r1; ti p2d3r3v2.2.2.2; me p3r3v2.2.2. III: fe p2d3r2; pa r1; ti p3d2r3v2.2.2; me p3r3 v 2.2.2. IV: fe p2d3r1; pa r1; ti p2d2r2 v.2.2.2; me p3r3v7. Palp: fe pv1p1d3.

Legs: scopula absent. Tibial fracture on I distinct, pro- and retrolaterally on I-IV. Trochanteral notches shallow, symmetrically shaped. Claw tufts thin, narrow.

Palp (Fig. 23A-C): tibia stout with sclerotised distal collar and rounded dorsal process locking with base of cymbium; tibial apophysis moderately long triangle with basal lobe. *Cymbium*: scopula extends over distal half; retrobasal corner with deep cutaway area both soft and pallid, forming basal edge directed at tibial apophysis; viewed retrolaterally bilobed with basal incursion; dorsally basal cymbium strongly narrowed, basally with heel; sclerotised ridge prolaterally with c.1/3 of base; basodorsal process a rounded heel; paracymbial discontinuity absent but pallid glabrous cutaway. *Bulb*: median apophysis a large hook, hooked portion *ca*. half total length extends to adjacent to base of median apophysis; base irregular, small. Embolic origin very broad tapering quickly near tip. Membranous tegular process distinct, long, banana-like.

TABLE 9. Leg measurements of *Krukt piligyna*, holotype male and allotype female.

Male	I	II	III	IV	Palp
Femur	2.54	2.31	1.92	2.15	1.00
Patella	1.00	1.23	0.85	0.77	0.61
Tibia	2.31	1.77	1.61	1.85	0.46
Metatarsus	2.38	1.69	1.85	2.85	1.15
Tarsus	0.92	0.85	1.00	1.15	
Total	9.15	7.85	7.23	8.77	3.22
Female	I	II	III	IV	Palp
Femur	2.31	1.92	1.85	1.92	1.23
Patella	1.38	1.23	0.92	1.15	0.77
Tibia	1.85	1.85	1.46	1.92	0.69
Metatarsus	1.46	1.61	1.46	2.23	0.85
Tarsus	0.69	0.69	1.08	1.00	
Total	7.69	7.30	6.77	8.22	3.54

Allotype ♀ QMS31167. Carapace 3.76 long, 2.92 wide. Abdomen 4.92, 3.80 wide. Total length, 8.8.

Eyes: AME:ALE:PME:PLE, 8:13:6:12. Eye group front width: back width: length, 55:81:38. Interspaces: AME-AME, 1.1; AME-ALE, 0.5; PME-PME, 2.4; PME-PLE, 1.2.

Chelicerae: p=3, r=3.

Spines: I: fe pv1 strong, p1d1r1; pa 0; ti v2.2.2.2; me v2.2.2. II: fe p1d3r1; pa 0; ti v2.2.2.2; me v2.2.2. III: fe p2d3r2; pa r1; ti p2d2r2v2.2.2; me p3r4v2.2.2. IV: fe p2d3r1; pa r1; ti p2d2r2v2.2.2; me p4r4v2.2.2. Palp: fe d3; pa 0; ti p2; ta p3.

Legs: scopula absent.

Epigyne (Figs 23D, 24A): externally a long narrow hirsute scape for length lies between two large rounded lateral lobes with large eleats off posterior corners; scape not movable. Copulatory fossae are anterior lateral of lobes, a broad flat duct folds posteriorly, turns anteriorly becoming broader as it passes close to ventral surface and posteriorly where it twists up to curved collar-like receptaculum; medially, deeply U-shaped ridge formed by dorsal extension of scape appears to join with insemination ducts but

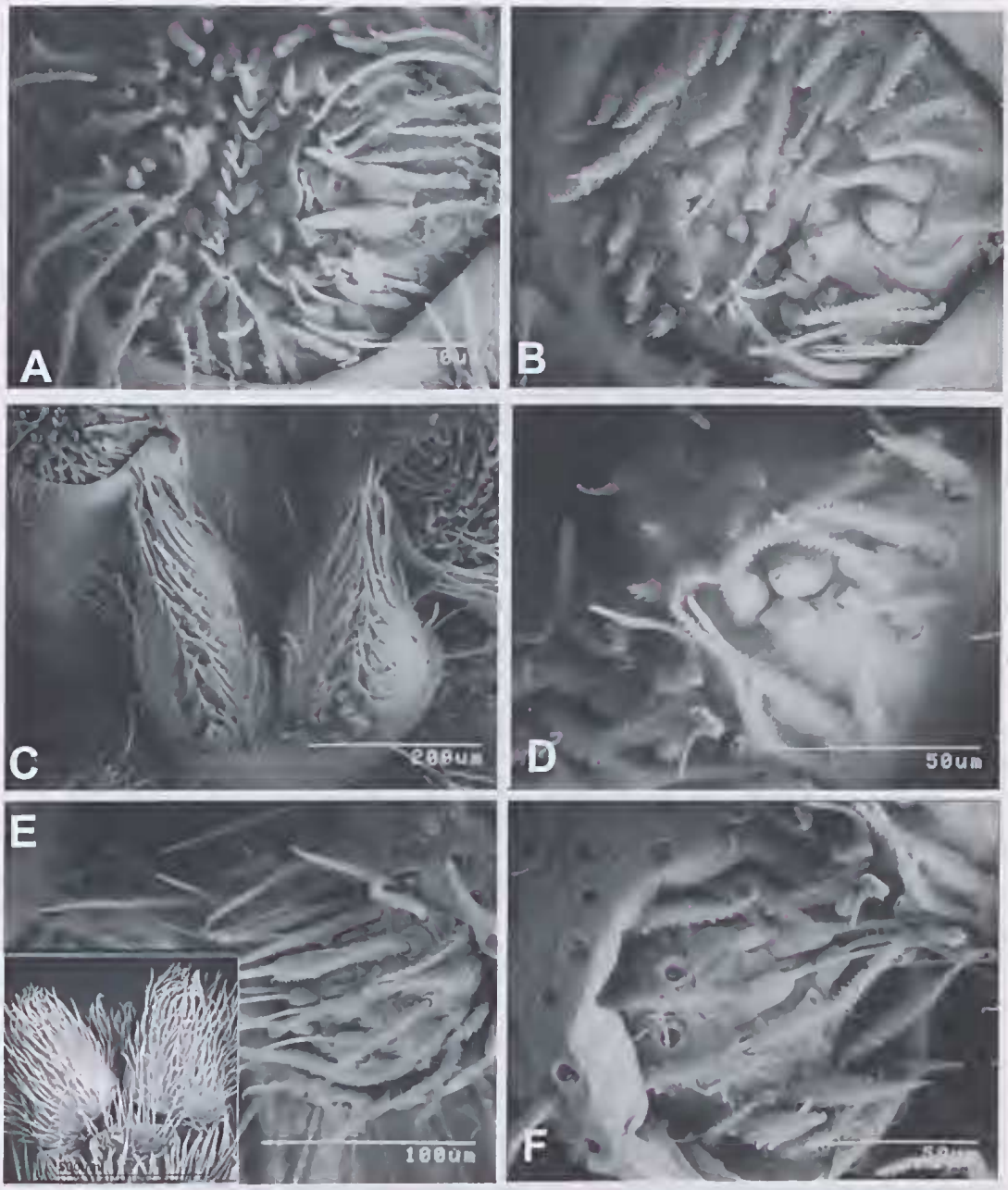

FIG. 21. Spinnerets, *Krukt piligyna*, sp. nov., QM S31162, scanning electron micrographs, apical view. A, C (dorsal), E, ♀; B, D, F, ♂. A, B, ALS; C, D, PMS; E, F, PLS; inset of E shows broad triangular fleshy colulus.

in fact is simply external. Lateral cleats have no internal connection.

DISTRIBUTION AND HABITAT. High altitude (>700m) rainforest at Mt Finnigan and nearby Mts Hartley and Sampson, NE Qld.

Krukt cannoni, sp. nov.
(Figs 20, 25-28; Table 10)

ETYMOLOGY. For Lester Cannon, Senior Curator of Invertebrates, Queensland Museum, 1976-2002.

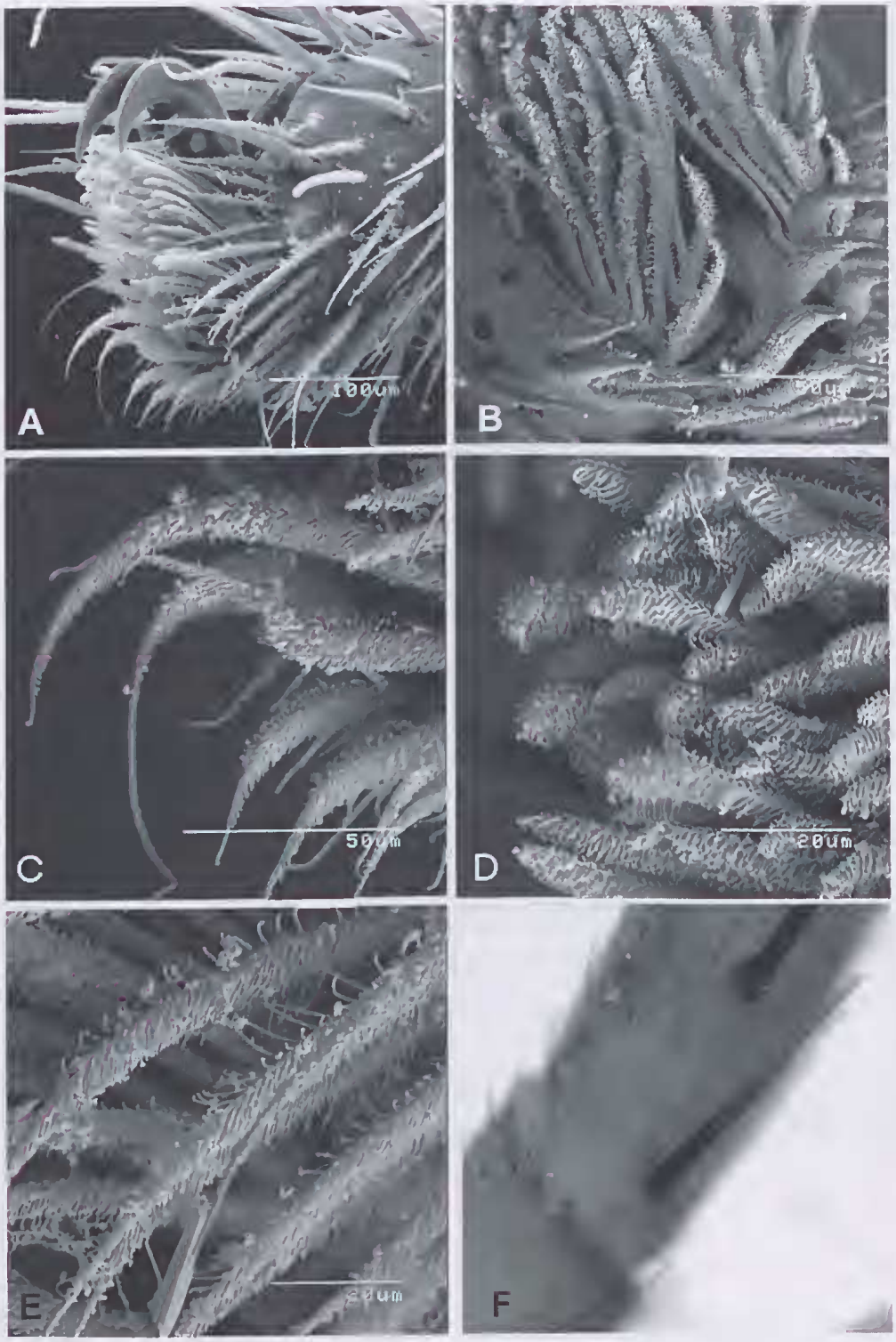

FIG. 22. Claw tufts, *Krukt piligyna*, sp. nov., ♀, leg I, scanning electron micrographs. A, retrolateral view; B, axial view; C, E, ventral tapering hairs; D, scopula hairs; F, ♂ tibia I photomicrograph showing crack, prolateral view.

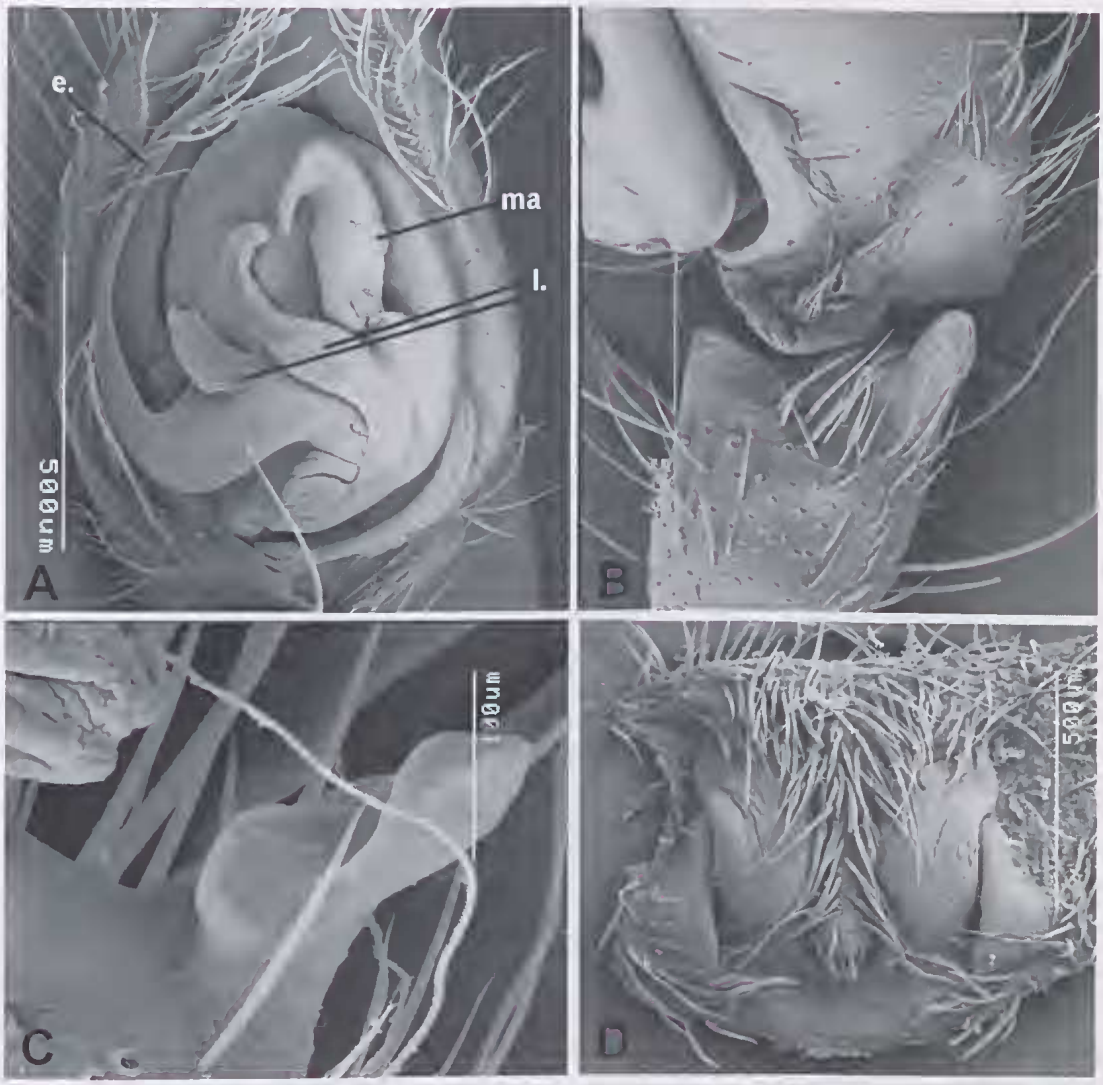

FIG. 23. *Krukt piligyna*, sp. nov., ♂, A-C, ♀, D. A, palpal bulb, ventral view; B, palpal tibia and eymbium, retrolateral view; C, tibial apophysis, ventral view; D, epigyne, ventral view.

MATERIAL. HOLOTYPE: ♂, Mt Sorrow summit, Cape Tribulation, 16°06'S 145°26'E, rainforest, sieved litter, 19 Oct 1980, G. Monteith, QM S31390. PARATYPES. allotype ♀, as for holotype, QM S31391; 2 ♀♀, as for holotype, QM S31392; ♀, Cape Tribulation, 3km W (Site 6), 16°05'S 145°27'E, rainforest, sieved litter, 19 Sep 1982, G. Monteith, D. Yeates, G. Thompson, QM S32958; 1 ♂, Mt Halcyon, 16°03'S 145°25'E, pitfall, 22-24 Nov 1993, G.Monteith, H.Janetzki, D.Cook, L.Roberts, QM S32959; 1 ♀, Roaring Meg valley, 16°04'S 145°25'E, rainforest, litter, 21 Nov 1993, G.Monteith H.Janetzki, QM S32960. Mt Hemmant, 16°07'S 145°25'E, rainforest: 2 ♂♂, pitfall, 25-27 Nov 1993, G.Monteith, H.Janetzki, D.Cook, L.Roberts, QM S32955; 1 ♀, 1 ♂, sieved litter, 25 Apr 1983, G.Monteith, D.Cook, QM S32954, 32953. Mt Pieter-Botte, 16°04'S 145°24'E, rainforest: 1 ♂, 2 ♀♀, pitfall, 21 Nov-8 Dec 1993, G.Monteith, H.Janetzki, QM S32950; 1 ♂ 1 ♀, pitfall, 2-8 Dec 1993, G.Monteith, H.Janetzki, QM S32956; 1 ♂, 0.5km E, 16°05'S 145°23'E, sieved litter, 5 Oct 1982, G.Monteith, D.Yeates, G.Thompson, QM S32957. 1 ♂, Thornton Peak, 16°10'S 145°23'E, 24-27 Sep 1984, G. & S. Monteith, sieved litter & moss, 20-22 Sep 1981, G.Monteith, D.Cook, QM S31170. All in NE Queensland.

DIAGNOSIS. Differs from most other species in short male palpal tibia and *K. ebbenielseni* and *K. vicoopsae* by absence of cymbial cutaway and

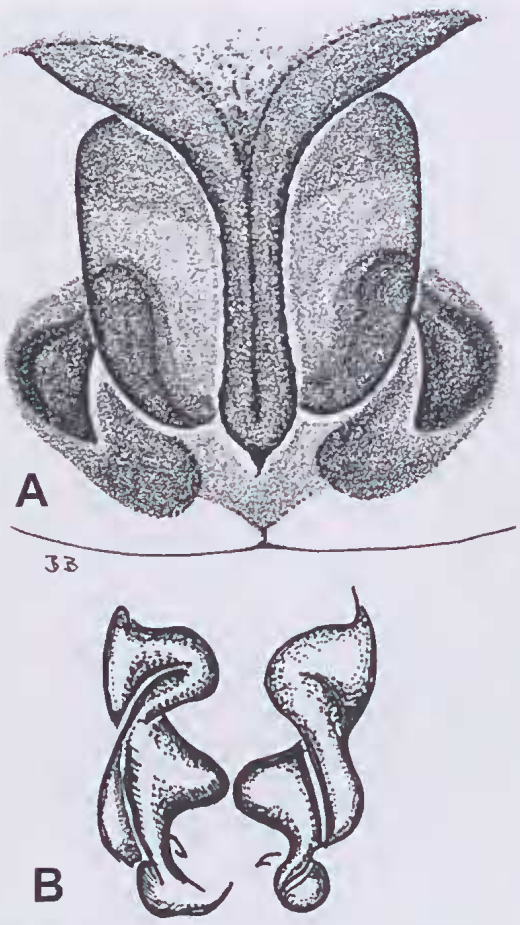

FIG. 24. *Krukt piligyna*, sp. nov., ♀. A, epigyne; B, vulva.

from *K. ebbenielseni* in normal tegulum shape and from all others in basodorsal cymbium process being hooked and from *K. vicoopsae* in lacking a basal tibial apophysis lobe and having the lateral epigyne lobes pointed.

DESCRIPTION. Holotype ♂. Carapace 3.84 long, 2.92 wide. Abdomen 2.96, 2.08 wide. Total length, 7.0.

Colour: carapace yellow brown with darker areas on margins, caput, interstrial ridge posterior lateral of PLE & behind AME. Legs with 3 incomplete rings on femora, one on patellae, two on tibiae, none on metatarsi. Abdomen dorsally mottled orange with irregular ovoid pallid area anteriorly, mottling darker posteriorly. Ventrally pallid with few transverse dark areas. Sternum fawn with dark band medially and on margins; elsewhere pallid.

Eyes: AME:ALE:PME:PLE, 8:6:13:11. Eye group front width: back width: length, 50:67:31. Interspaces: AME-AME, 0.7; AME-ALE, 0.3; PME-PME, 1.9; PME-PLE, 1.8.

Sternum: narrow, broken, ventral sternal extension.

Spines: I: fe pv1 strong, p1d3r3; pa r1; ti p2d3r3v2.2.2.2.0; me p3r3v2.2.2. II: fe p1d3r3; pa r1; ti p2d3r3v2.2.2.2.0; me p3r3v2.2.2. III: fe p2d3r3; pa r1; ti p2d2r2v2.2.2; me p1.2.2r2.1.2v2.2.2. IV: fe p2d3r1; pa r1; ti p2d2r2v.2.2.2; me p5r2.2.2v2.2.2. Palp: fe p1d1.2, rest 0.

Legs: scopula absent; tibial fracture on I-IV prolaterally and retrolaterally distinct; trochanteral notches shallow.

Palp (Figs 25A-C, 26A-C): tibia *ca.* 1.5× longer than wide, barrel-like with sclerotised collar (as in all species) around distal edge; tibial apophyis a large but short twisted blunt process, retroventrally with small separate (not on same lobe) digitiform lobe. *Cymbium*: scopula extends just over half; basodorsal process viewed from above (back of cymbium) a distinct triangular extension narrowing to small teat clearly hooked to retrolateral corner, below basodorsal process clearly sclerotised. Paracymbial discontinuity retrobasally with small sclerotised corner. *Bulb*: median apophysis base small, short, rectanguloid, converging quickly to large apical hook; embolus origin large, tapering quickly to narrow scoop.

Allotype ♀. As for male except as follows: Carapace 4.04 long, 3.20 wide. Abdomen 4.48, 3.16 wide. Total length, 4.8.

Colour: carapace brown with dark brown markings, legs strongly banded. Abdomen dorsally dark mottled with paler oval area anteriorly, ventrally darkly mottled.

Eyes: AME:ALE:PME:PLE, 9:13:9:13. Eye group front width: back width: length, 59:82:38. Interspaces: AME-AME, 1.0; AME-ALE, 0.3; PME-PME, 1.7; PME-PLE, 1.2.

Spines: I: fe pv1 strong, p1d1r1; pa 0; ti v2.2.2.2; me v2.2.2. II: fe p2d3r1; pa 0; ti v2.2.2.2; me v2.2.2. III: fe p3d3r2; pa r1; ti p2d2r2v2.2.2; me p1.2.2r2.1.2v2.2.2. IV: fe p2d2r1; pa r1; ti p2d2r2v1.2.2; me p5r2.2.2v6 paired. Palp: fe d1.2; pa 0; ti p2r1; ta p3.

Legs: scopula absent; claws with 3-4 teeth; tufts united; tarsal rod at basal 2/5.

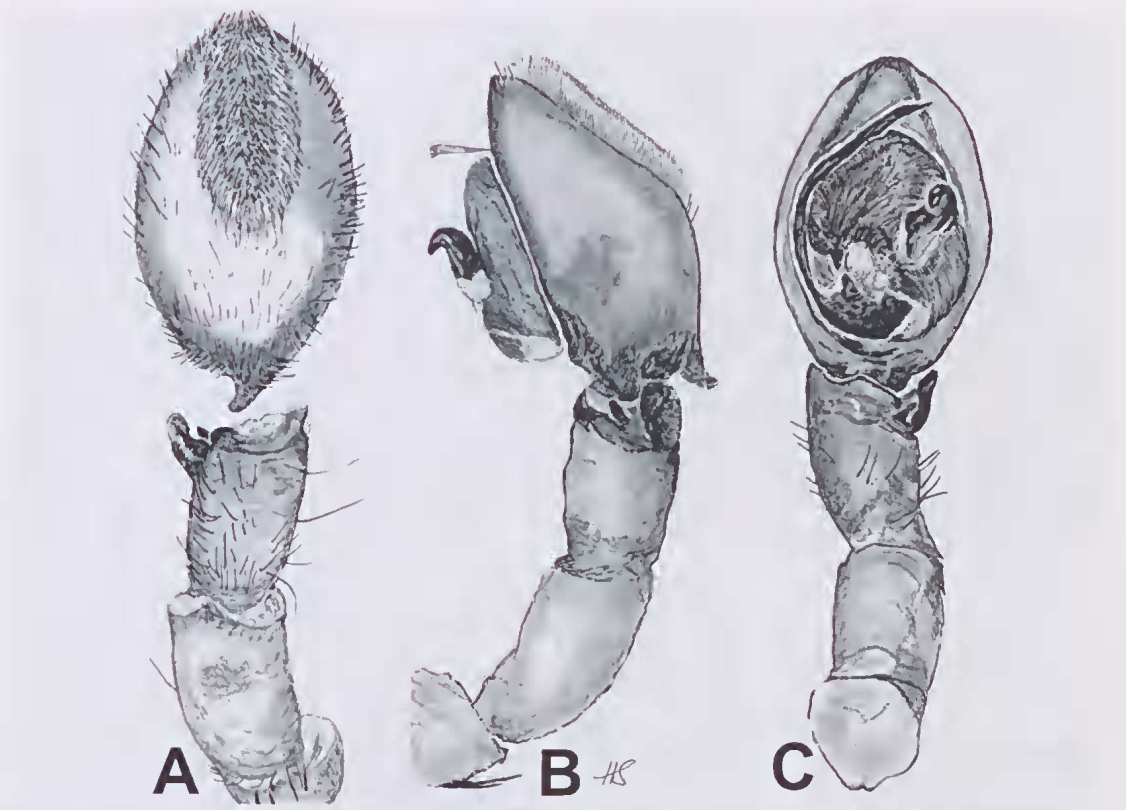

FIG. 25. *Krukt cannoni*, sp. nov., ♂, palpal tibia, cymbium and bulb; dorsal (A), retrolateral (B), and ventral (C) views.

Epigyne (Figs 26D, 27C-E): a broad domed central scape widening at mid-basal area and lateral grooves adjacent to diagonal ridge.

TABLE 10. Leg measurements of *Krukt cannoni*, holotype male and allotype female.

Male	I	II	III	IV	Palp
Femur	2.31	2.23	2.31	2.61	1.08
Patella	1.00	1.08	1.00	1.08	0.61
Tibia	2.46	2.07	2.07	2.69	0.54
Metatarsus	2.31	2.15	1.77	3.38	1.00
Tarsus	1.00	0.92	1.00	1.38	
Total	9.08	8.45	8.15	11.14	3.23
Female	I	II	III	IV	Palp
Femur	2.23	2.38	2.00	2.31	1.23
Patella	1.31	1.23	1.15	1.23	0.69
Tibia	2.15	1.92	1.54	2.38	0.77
Metatarsus	1.85	1.77	1.92	3.08	1.00
Tarsus	0.92	0.85	1.00	1.15	
Total	8.46	8.15	7.61	10.15	3.69

DISTRIBUTION AND HABITAT.High altitude (>700m) rainforest at Mt Sorrow, Roaring Meg Valley, Mt Hemmant, Mt Pieter-Botte, Mt Haleyon, west of Cape Tribulation, and Thornton Peak, NE Qld.

Krukt ebbenielseni sp. nov.
(Figs 20, 28; Table 11)

ETYMOLOGY. For the late Dr Ebbe Nielsen.

MATERIAL. HOLOTYPE: ♂, Thornton Peak, 16°10'S 145°23'E, NEQLD, 24-27 Sep 1984, G. & S. Monteith, QM S31169. PARATYPES: ♂, Thornton Peak, 16°10'S 145°22'E, 955m, Nov 1975, M. Gray, AM KS9163.

DIAGNOSIS. Males are unique in the genus in the posteriorly produced but ventrally extensively unselerotised tegulum.

DESCRIPTION. Holotype ♂. Carapace 3.68 long, 2.80 wide. Abdomen 2.80, 1.92 wide. Total length, 6.8.

Eyes: AME:ALE:PME:PLE, 8:11:7:12. Eye group front width: back width: length, 48:70:34.

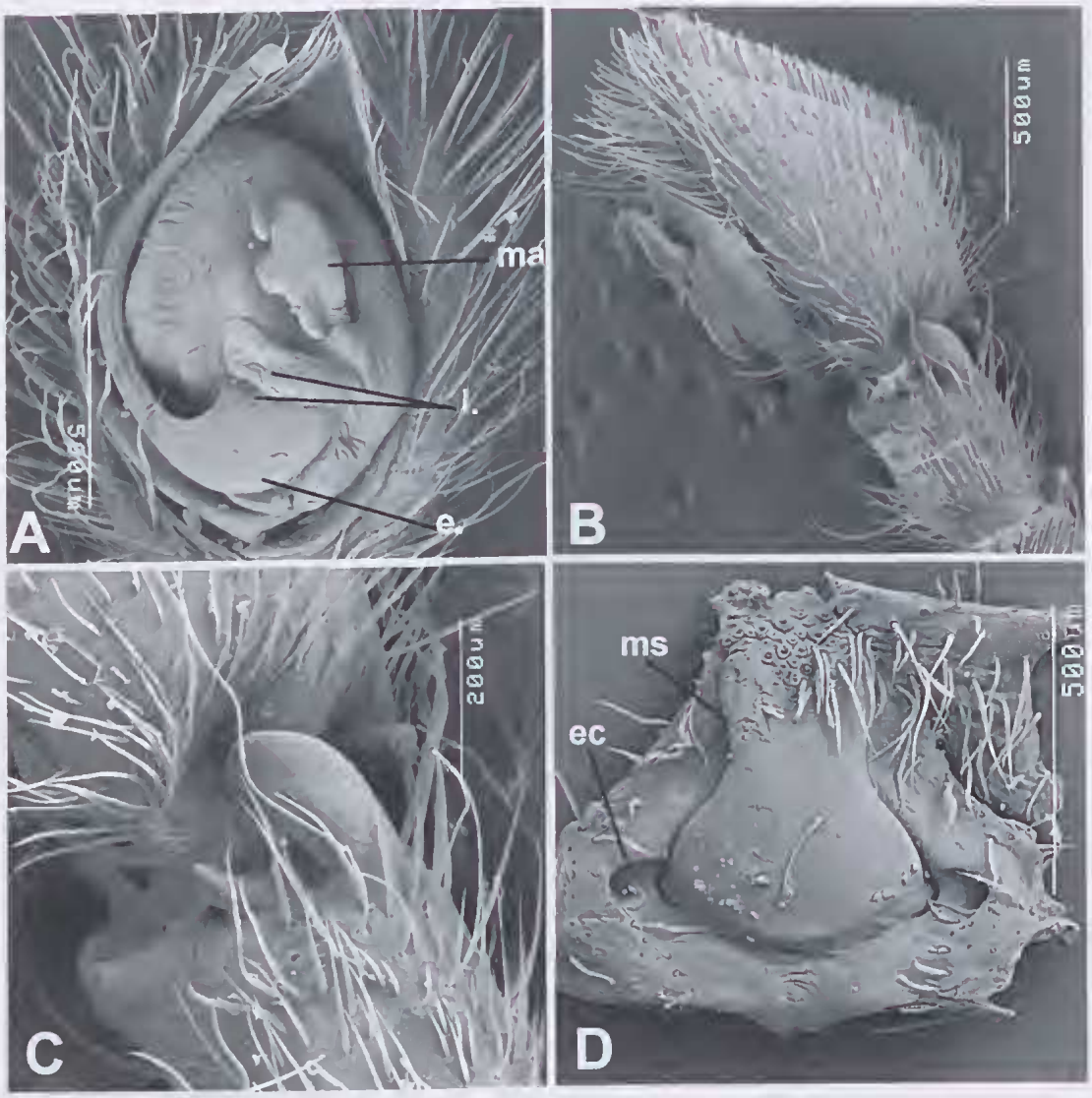

FIG. 26. *Krukt cannoni*, sp. nov., ♂, A-C, ♀ D. A, palpal bulb, ventral view; B, palpal tibia and cymbium, retrolateral view; C, tibial apophysis, retrolateral view; D, epigyne, ventral view.

Interspaces: AME-AME, 0.7; AME-ALE, 0.3; PME-PME, 1.9; PME-PLE, 1.2.

Spines: I: fe pv1 strong, p1d3r2; pa r1; ti p2d1r3v2.2.2.2; me p1r1v2.2.2. II: fe p2d3r3; pa r1; ti p2d3r2v2.2.2.2; me p1r3v2.2.2. III: fe p3d3r3; pa r1; ti p2d2r2v2.2.2; me p4r5v2.2.2. IV: fe p3d3r1; pa r1; ti p2d2r2v.2.2.2; me p5r6v2.2.2.2. Palp: fe p1d2r1.

Legs: tibial fracture prolaterally and retrolaterally distinct on I & II. Trochanteral notches: shallow, I, II deeper in back of notch to front; III, IV symmetrical.

Palp (Fig. 28A-E): tibia stout with rounded distal heels prolaterally and prodorsally; tibial apophysis large, scooped with ventral corner folded. *Cymbium*: scopula extends to distal half; retrobasally indented; basodorsal process broad, rounded; paracymbial discontinuity absent. *Bulb*: median apophysis large, wide with broad, apical hook, base roughly crescentic; small then becomes extensive; embolus arises medially off prolateral side.

Female: unknown.

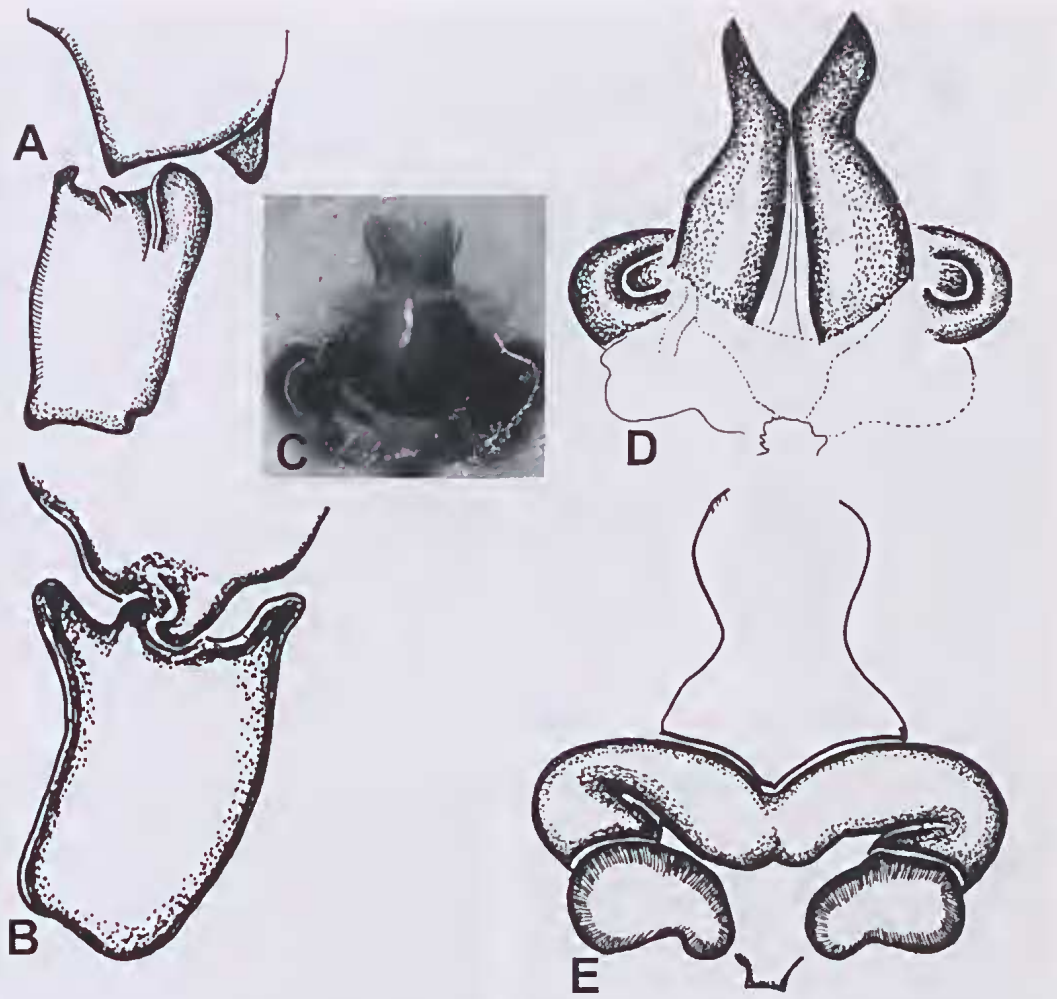

FIG. 27. *Krukt cannoni*, sp. nov. A, B, ♂ palpal tibia and cymbium base, retrolateral (A) and retrodorsal (B) views. C-E, ♀; C, D, epigyne, photomicrograph (C); E, vulva.

DISTRIBUTION AND HABITAT. High altitude (>700m) rainforest at Thornton Peak, NE Qld.

TABLE 11. Leg measurements of *Krukt ebbenielseni*, holotype male.

	I	II	III	IV	Palp
Femur	2.69	2.54	2.61	3.31	1.54
Patella	1.23	1.23	1.15	1.23	0.61
Tibia	2.92	2.54	2.00	2.92	0.69
Metatarsus	2.69	2.31	2.31	3.46	1.38
Tarsus	1.08	1.15	1.00	1.38	
Total	10.61	9.77	9.07	12.30	4.22

Krukt megma sp. nov.
(Figs 20, 29-31; Table 12)

ETYMOLOGY. An arbitary combination of letters.

MATERIAL. HOLOTYPE: ♂, Mossman Bluff Track, 5-10km W Mossman (Site 5), 16°28'S 145°22'E, NEQLD, rainforest, pitfall, 16-30 Dec 1988, G.Monteith, G.Thompson, ANZSES Expedition, QM S16650. PARATYPES. Allotype ♀, as for holotype, QM S58221; 1 ♂, Mossman Bluff Track, 5-10km W Mossman (Site 1), 16°28'S 145°22'E, 250m, flight intercept trap, 1-16 Jan 1989, G.Monteith, G.Thompson, ANZSES Expedition, QM S31129; 1 ♀, same data but (Site 4), 16°25'S 145°20'E, 800-1000m, pitfall, 20 Dec 1989-15 Jan 1990, QM S32882; 3 ♂♂ 1 ♀, same data but, site 5, 16°39'S 145°34'E, 760m, pitfall, 20 Dec 1989-15 Jan 1990, QM S31132, S31131.

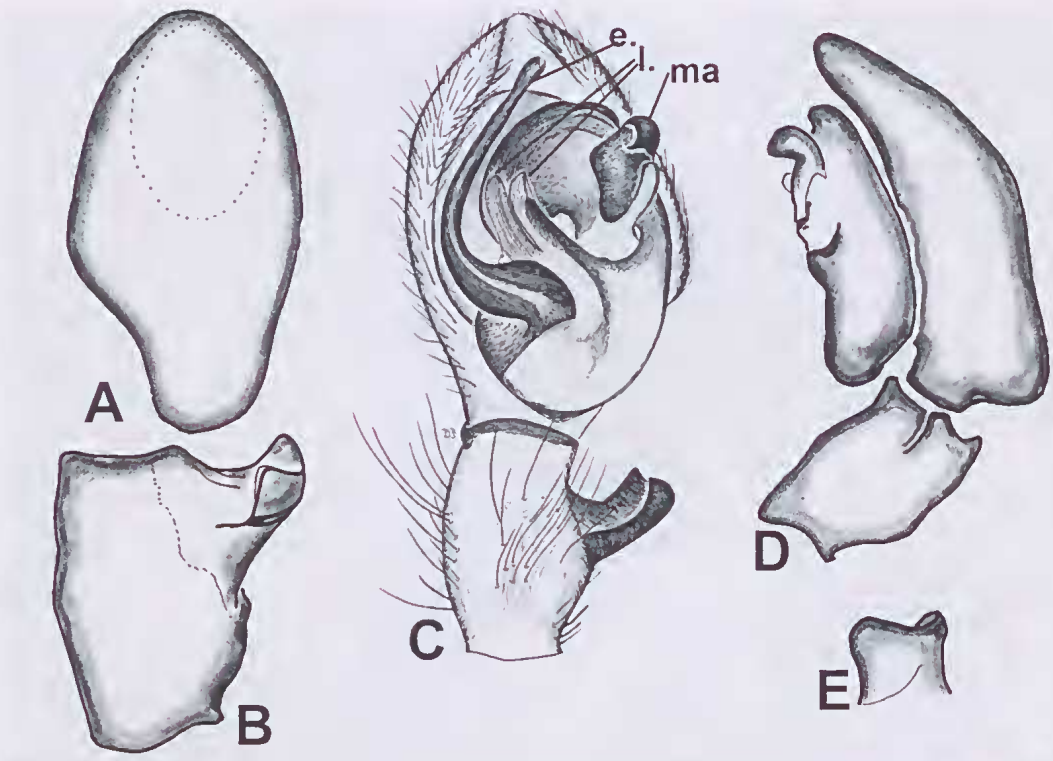

FIG. 28. *Krukt ebbenielseni*, sp. nov., ♂ palpal tibia, cymbium and bulb; dorsal (A), ventral (B, C), retrolateral views (D), tibial apophysis, retrodorsal view (E).

DIAGNOSIS. Males are easily separated from those of other congeners by the very large central median apophysis; females are also easily recognised by the short wide parallel-sided scape in the epigyne.

DESCRIPTION. Holotype ♂. Carapace 3.52 long, 2.80 wide. Abdomen 5.00 long, 3.88 wide.

Colour in alcohol. Carapace orange brown with darker margins in posterior half; centrally with reticulate dark areas forming pallid hemispheres along margin. Eye region not dark. Chelicerae yellow brown with 2 dark stripes. Abdomen dorsally yellowish with dark anterior shoulders and more mottling in posterior half with large almost entirely pallid anterior area.

Carapace. AME on common tubercle overhanging clypeus.

Spines. I: fe pv1p1d3r2; pa 0; ti p2d1r3v2.2.2.2; me p2r2v2.2.2. II: fe p2d3r2; pa0; ti p3d2r3v2.2.2.2; me p2r2v2.2.2. III: fe p2d3r2; pa0; ti p2d2r2v2.2.2; me p1.2.2r2.1.2v2.2.2. IV: p3d3r1; pa r1; ti p2d2r2v2.2.2; me p1p1p1p2r1.1.2.2v2.2.2. Palp: fe p1d1.2; rest, 0.

Palp (Figs 29A-C, 30A-C). Tibia short, barrel-shaped with large blade-like RTA at half-length; tibia distally with collar and single dorsal lobe; collar absent from retroventral edge. Cymbium with narrow dorsal scopula; very narrow base/junction with tibia; in posterior half, cymbium narrows strongly to basodorsal overhanging process. Tegulum with small marginal basal component, distally large plate. Embolus with very large wide base, tapers quickly to narrow tip; a small triangular lamella at base of embolus; embolus entirely mobile. Median apophysis a large, curved hook narrowly attached to tegulum and mobile.

Allotype ♀. *Colour in alcohol*. Carapace like male but orange brown with more extensive darker areas. Abdomen dorsally with darker shoulders, anterior shields distinct. Legs red brown; dark bands on distal femora, tibiae and metatarsi; coxae ventrally dark distally. Bipartite dark shadow centrally on sternum with dark spots marginally opposing coxae.

Eyes. AME:ALE:PME:PLE, 7:9:5:8. Eye group front width: back width: length, 41:57:25.

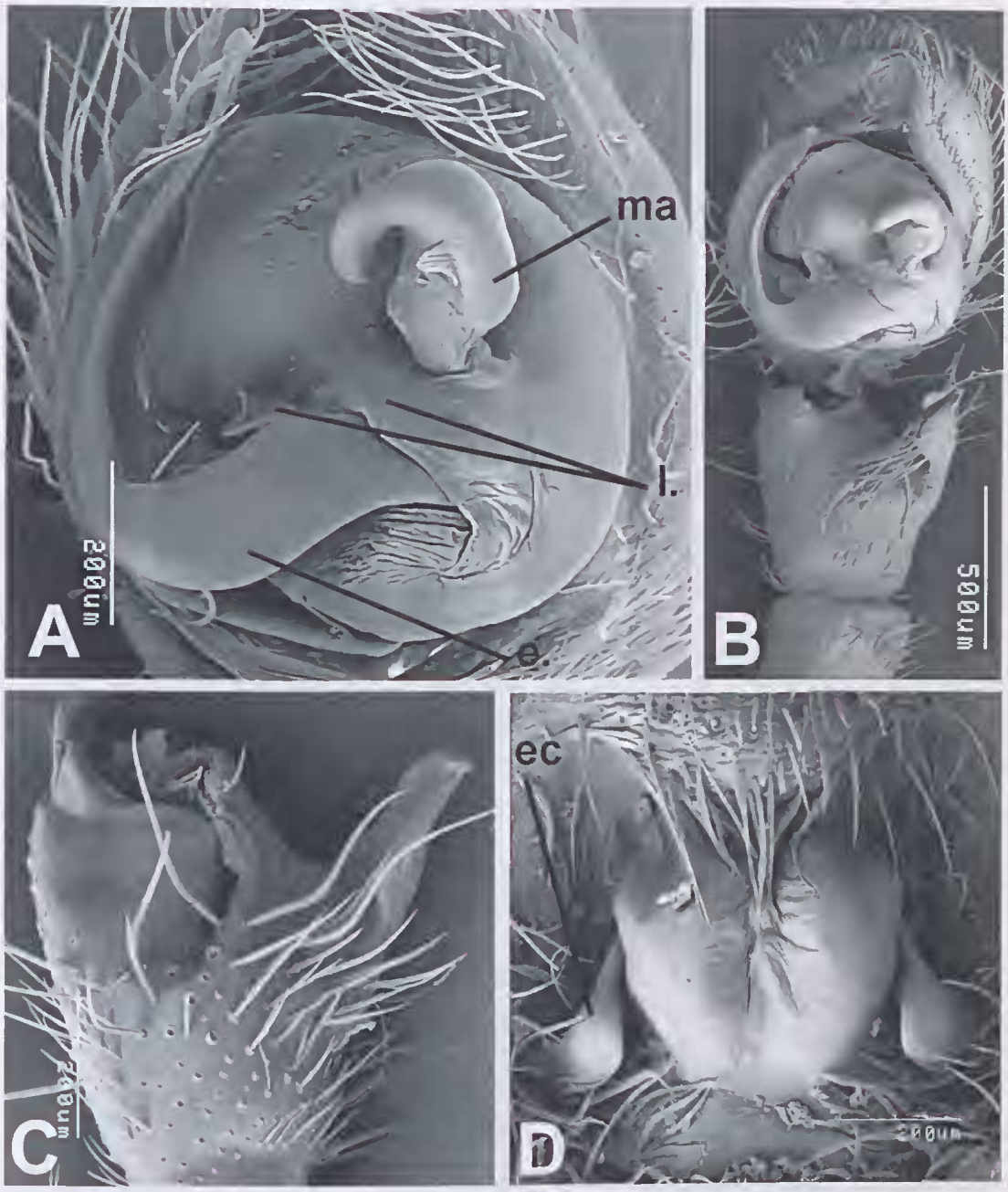

FIG. 29. *Krukt megma*, sp. nov., scanning electron micrographs. A-C, ♂ palp; A, bulb, ventral view; B, C, patella, tibia (C), cymbium and bulb (B), ventral view. D, ♀ epigyne.

Interspaces: AME-AME, 0.7; AME-ALE, 0.4; PME-PLE, 1.9; PME-PME, 1.6.

Legs. Scopula absent. Tarsal rod at basal third.

Spines. Strong proventral femoral spine on I. I: fe pv1p1d2r1; pa0; ti v2.2.2.2; me v2.2.2. II, as I but fe p2d3r2. III: fc p2d3r2; pa0; ti p2d2r2v2.2.2; me p1.2.2r2.1.2v2.2.2. IV: fc p2d3r1; pa r1; ti p2d2r2v2.2.2; mc p1.1.1.2.r2.2.2v2.2.2. Palp: fe d1.2; pa0; ti p2d1; ta p2.1.

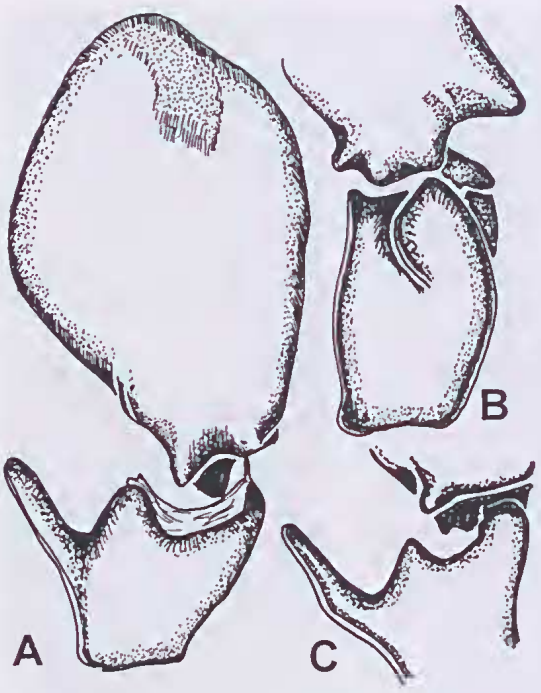

FIG. 30. *Krukt megma*, sp. nov., A-C, ♂ palpal tibia and cymbium. A, dorsal view; B, retrolateral view; C, inclined dorsal view.

Claws. Paired claws with 2-3 teeth. Palpal claw long, 5 teeth, shortest basally.

Spinnerets. All on protuberant base. PMS with 1 line of 3-4 spigots dorsally and 4-6 large spigots apically.

TABLE 12. Leg measurements of *Krukt megma* sp. nov. allotype female.

	I	II	III	IV	Palp
Femur	2.24	1.92	2.08	2.52	1.16
Patella	1.20	1.16	0.96	1.00	0.44
Tibia	1.92	1.76	1.32	2.00	0.64
Metatarsus	1.56	1.48	1.64	2.72	
Tarsus	0.76	0.60	1.12	1.12	0.80
Total	7.68	6.92	6.84	9.36	3.04

Epigyne (Figs 29D, 31A-C). A low flattened plate with long biconvex grooves and small lateral cleats. Vulva similar to *K. piligyna*.

DISTRIBUTION AND HABITAT. Mossman Bluff Track, 5-10km W Mossman, in rainforest at 250-1000m altitude, NE Qld.

Krukt vicoopsae sp. nov.
(Figs 20, 32A-D,F-G, 33A-D; Table 13)

ETYMOLOGY. For Victoria Coops, Library Technician, Queensland Museum, 1981- 2002.

MATERIAL. HOLOTYPE: ♂, Mt Boolbun Sth, 15°57'S 145°08'E, rainforest, litter, 6 Nov 1995, G. Monteith, QM S31126. PARATYPES: allotype ♀, Mt Boolbun Sth, 15°57'S 145°08'E, rainforest, 4-6 Nov 1995, G. Monteith, D. Cook, L. Roberts, QM S31128; 1 ♀, same data but litter, 6 Nov 1995, G. Monteith, QM S38158; 1 ♀, same data but dung, pitfalls, & intercepts, 4-6 Nov 1995, G. Monteith, QM S31127; 1 ♂, Mt Misery, summit, site 3, 15°52'S 145°14'E, flight intercept trap, 6 Dec 1990-17 Jan 1991, Qld Museum & ANZSES Expedition, QM S40893. All in north-eastern Queensland.

DIAGNOSIS. Males differ from those of *Krukt megma* in the much smaller tibial and median

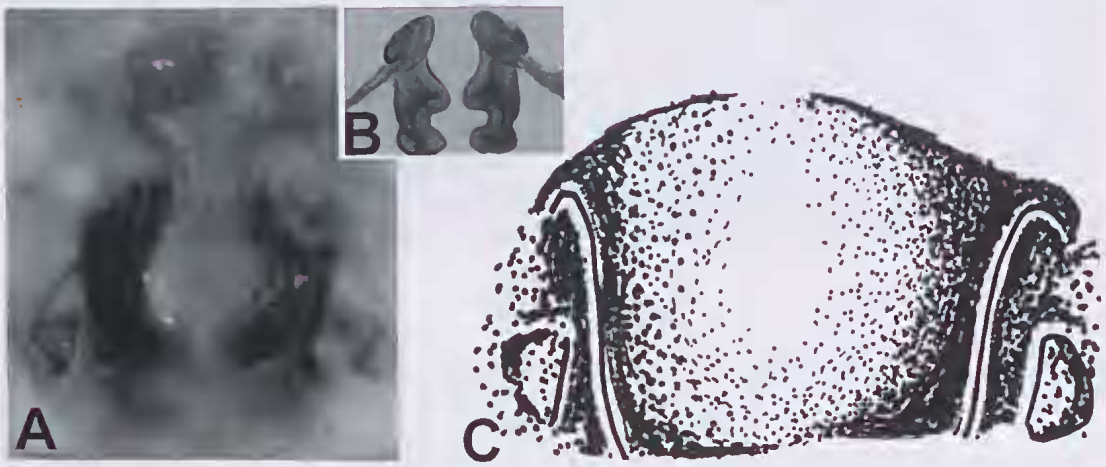

FIG. 31. *Krukt megma*, sp. nov., ♀. A, C (axial view), epigyne; B, vulva.

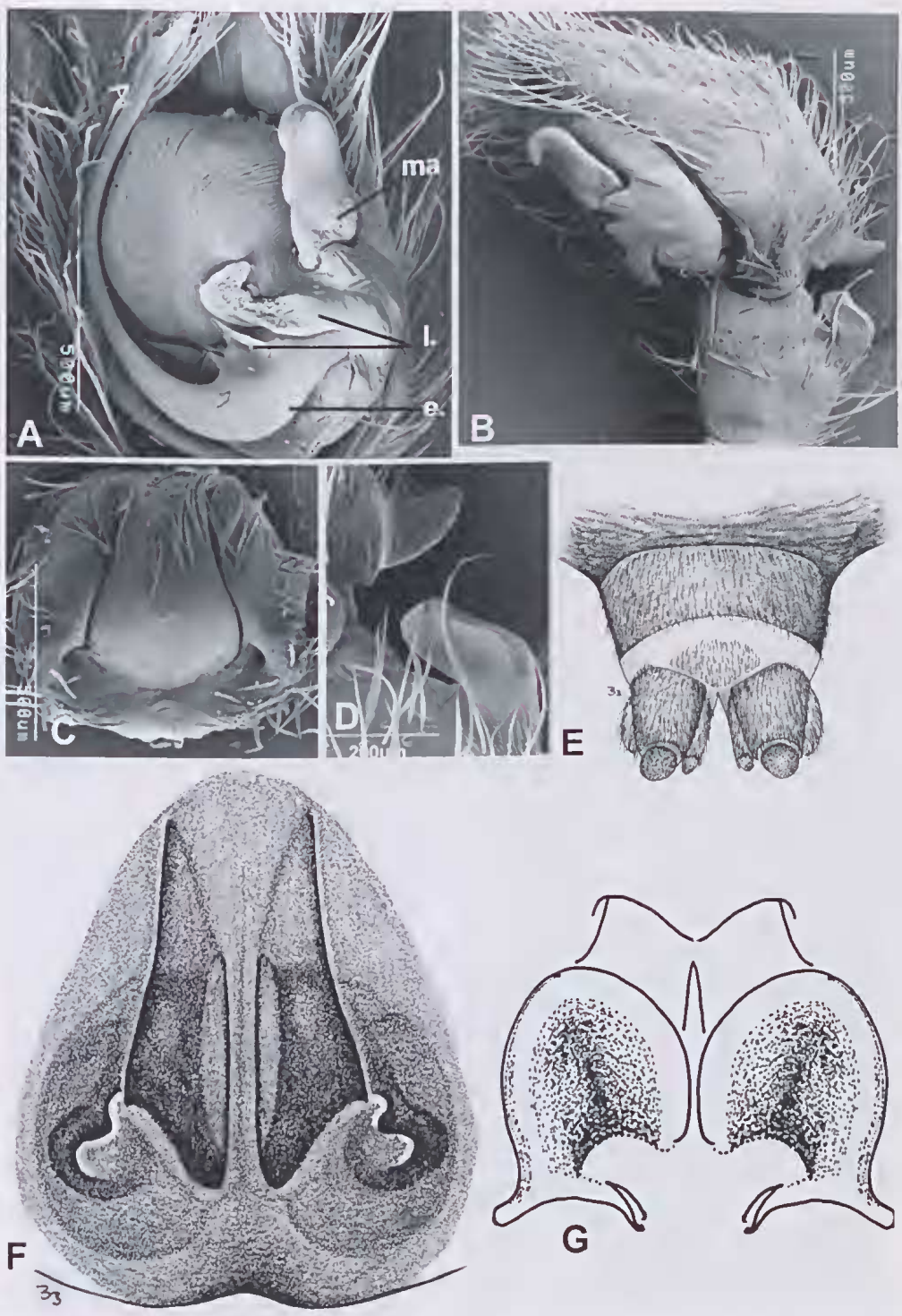

FIG. 32. A-D, F-G, *Krukt vicoopsae*, sp. nov. A-D, seanning electron micrographs; A, B, D, ♂ palp; A, bulb, ventral view; B, D, tibia, eymbium and bulb (D), retrolateral view. C, F, G, ♀; C, F, epigyne; G, vulva. E, *Krukt piligyna*, ♀, spinnerets, ventral showing extended eommon base.

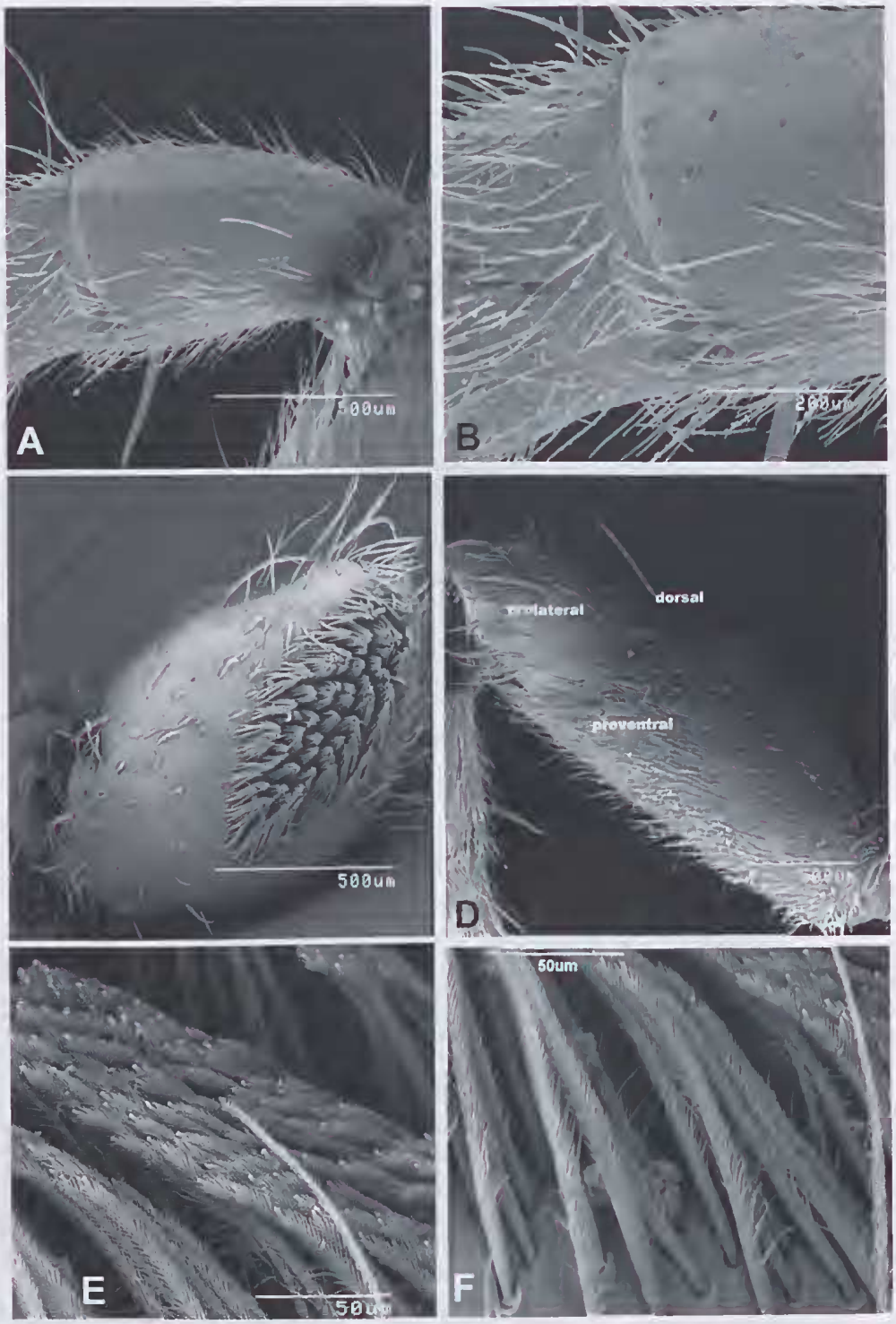

FIG. 33. A-D, *Krukt vicoopsae*, sp. nov. A, B, ♂ tibia I showing basal groove marking crack; C, scopula on dorsal cymbium; D, prolateral femur I showing proventral spine. E, F, *Megateg elegans*, sp. nov., scopula hairs on dorsal cymbium.

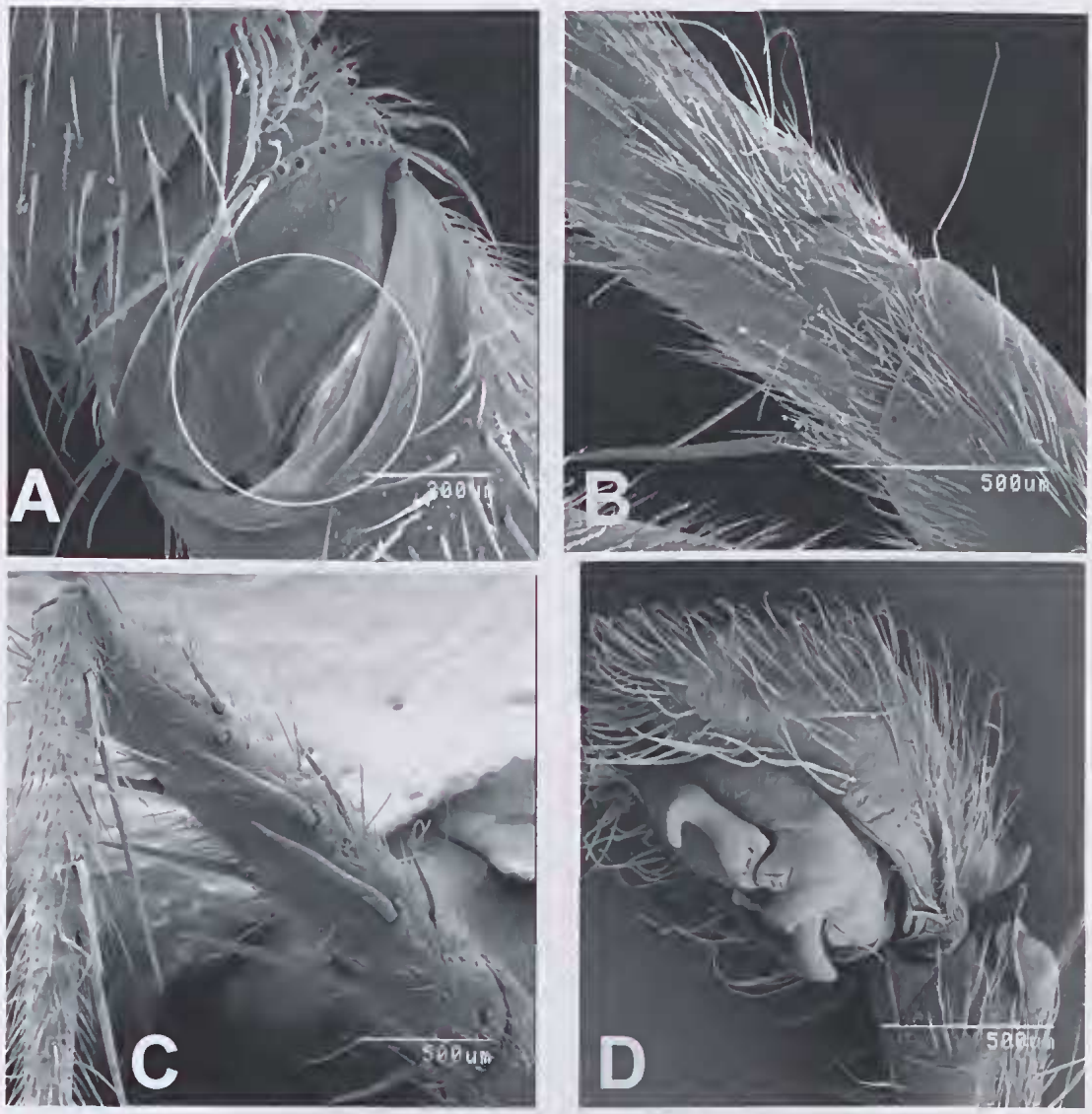

FIG. 34. A-D, *Krukt vicoopsae*, sp. nov., ♂, scanning electron micrographs. A, trochanteral notch, ventral view; B, patella and tibia I, prolateral view, showing elongate apical seta on patella; C, tibia and metatarsus I, ventral view; D, palpal tibia, bulb and cymbium showing basodorsal cymbial process.

apophyses and females differ from those of *K. piligyna* in the broad glabrous epigynal scape.

DESCRIPTION. Holotype ♂ QMS31126. Carapace 4.16 long, 3.28 wide. Abdomen 3.52, 2.44 wide. Total length, 8.0.

Eyes: AME:ALE:PME:PLE, 9:11:9:12. Eye group front width: back width: length, 54:47:37. Interspaces: AME-AME, 0.7; AME-ALE, 0.5; PME-PME, 1.7; PME-PLE, 1.0.

Spines: I: fe pv1 strong, p3d3; pa r1; ti p2d2r2v2.2.2.2; me p2r2v2.2.2. II: fe pv1 strong, p2d3r2; pa r1; ti p3d3r3v2.2.2.2; me p3r3v2.2.2. III: fe p3d3r2; pa r1; ti p2d2r2v2.2.2; me p3r4 v 2.2.2. IV: fe p2d3r1; pa r1; ti p2d2r2 v.2.2.2; me p4r3v6 unpaired. Palp: fe p1d3.

Legs: scopula absent. Tibial fracture: I-IV, prolaterally distinct, not evident retrolaterally. Trochanteral notches shallow, deeper in back of notch to front.

TABLE 13. Leg measurements of *Krukt vicoopsae*, holotype male and allotype female.

Male	I	II	III	IV	Palp
Femur	3.15	3.15	2.61	3.23	1.46
Patella	1.31	1.38	1.00	1.15	0.85
Tibia	3.15	2.77	2.31	3.08	0.77
Metatarsus	3.00	2.61	2.61	4.23	1.31
Tarsus	1.23	1.08	1.00	1.46	
Total	11.84	10.99	9.53	13.15	4.39
Female	I	II	III	IV	Palp
Femur	2.69	2.61	2.38	3.08	1.08
Patella	1.38	1.38	0.92	0.77	0.61
Tibia	2.31	2.00	1.61	2.31	0.77
Metatarsus	1.92	2.00	1.69	3.08	1.08
Tarsus	0.92	0.85	0.92	1.00	
Total	9.22	8.84	7.52	10.24	3.54

Palp (Fig. 32A,B): tibia stout but longer than wide, medially barrel-shaped, glabrous area on pro-distal ventral corner; low sclerotised collar on proventral corner, and prolateral and triangular collar process. Tibial apophysis basally broad, twisting in apex, axe-like process with face of axe prolateral, with edge pointing ventrally. *Cymbium*: distinct, broad, sclerotised ridge on retroventral corner; scopula extends to distal 3/5ths; from above, a gradual teat-like process pointing posteriorly; basodorsal process horn-like; paracymbial discontinuity a slight mound. *Bulb*: median apophysis a broad, simple hook, with small irregular base; embolus originates basal orthogonally and tapers gradually to long fine tip; hyaline blade-like process above base of embolus.

Allotype ♀ QMS31128. As for male except as follows. Carapace 4.52 long, 3.40 wide. Abdomen 7.60, 5.12 wide. Total length, 12.8.

Eyes: AME:ALE:PME:PLE, 11:14:8:14. Eye group front width: back width: length, 63:89:40. Interspaces: AME-AME, 0.5; AME-ALE, 0.5; PME-PME, 2.1; PME-PLE, 1.1.

Spines: I: fe pv1 strong, p1d1; pa 0; ti v2.2.2.2; me v2.2.2. II: fe p2d3r1; pa 0; ti v2.2.2.2. me v2.2.2. III: fe p2d3r2; pa r1; ti p2d2r2v2.2.2; me p4r4v2.2.2. IV: fe p2d3r1; pa r1; ti p2d2r2v5; mc p5r6v7. Palp: fe p1d2; pa 0; ti p2; ta p3r1.

Legs: scopula absent; paired claws with 2-3 teeth.

Epigyne (Fig. 32C,F,G): with broad medial ridge with distinct partial division. Ridge ends at centre of sclerotized ovoid area with lateral ridges overlapping ends of medial ridge. Vulva like *K. piligyna* but posteriorly so large as to almost conceal anterior portion of spermathecae.

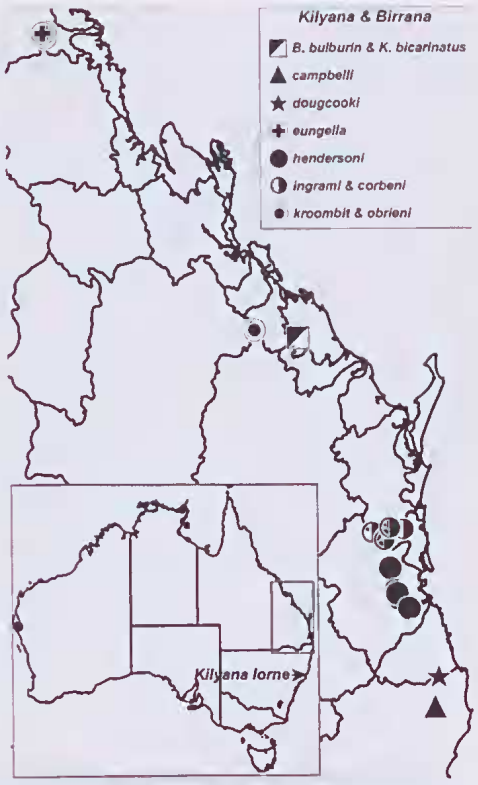

FIG. 35. *Birrana* and *Kilyana*, distribution map.

DISTRIBUTION AND HABITAT. High altitude (>700m) rainforest at Mt Boolbun South, NE Qld.

Birrana gen. nov.

TYPE SPECIES. *Birrana bulburin* sp. nov.

ETYMOLOGY. Aboriginal *birrana*, throwing stick alluding to the tarsal rod, the gender is feminine.

DIAGNOSIS. Differs from *Kilyana* in the presence of a tarsal rod and from *Megateg* and *Krukt* in the shorter rod; males differ from those of *Megateg* in the short male palpal tibia and small RTA and of *Krukt* in the small RTA and extensive tegulum; females differ from those of *Megateg* in the presence of a median scape, from those of *Krukt* in the absence of basolateral cleats, and from those of *Huntia* in having claw tufts and lacking lateral teeth.

DESCRIPTION. As for species.

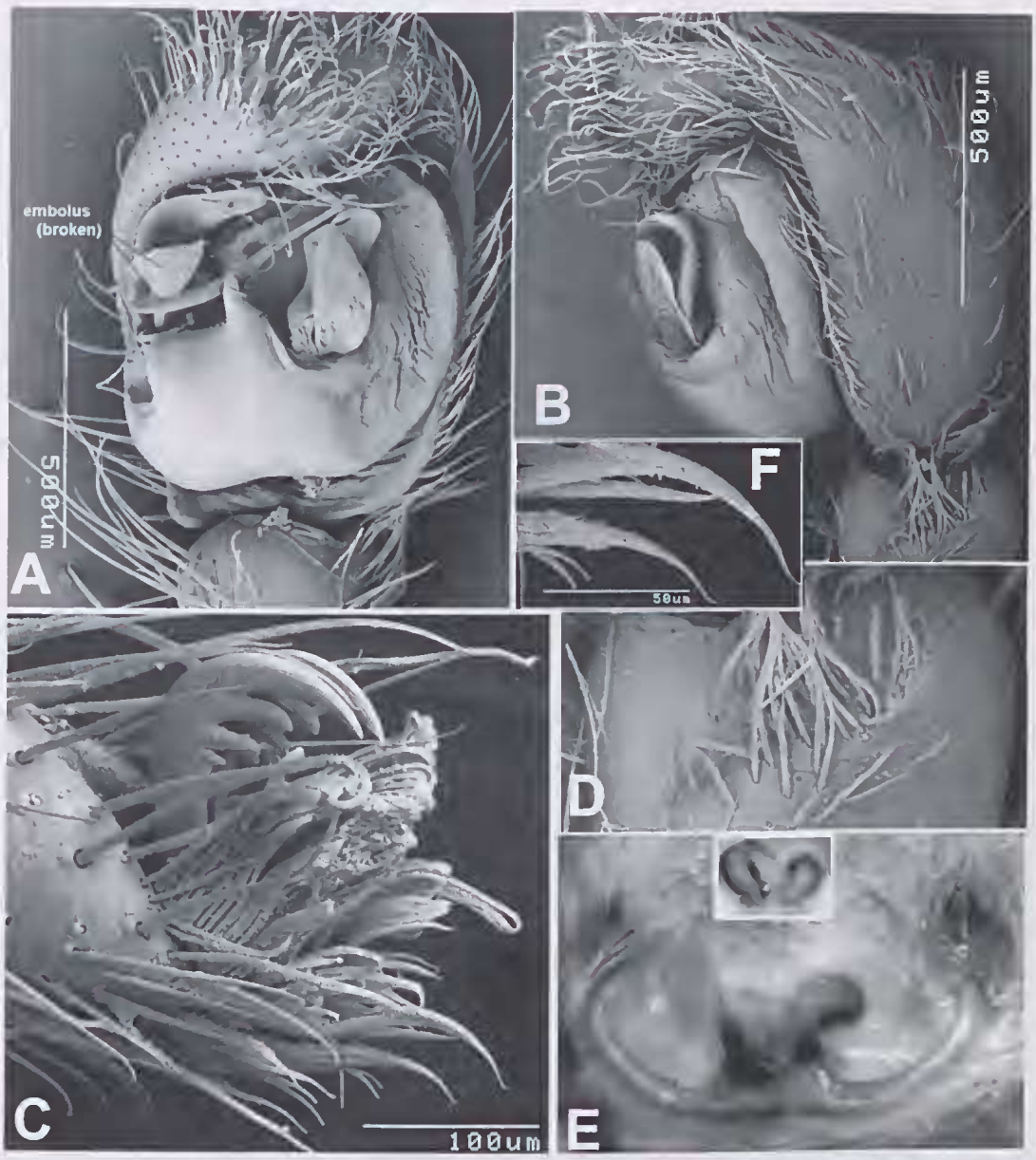

FIG. 36. *Birrana bulburin*, sp. nov., A-E, ♂. A, B, palpal tibia, eymbium & bulb; ventral (A) and retrolateral view (B); C, palpal tibia, retrolateral view; D, tarsus I showing claws & claw tufts with ventrodistal hairs. E, ♀ epigyne and vulva (inset).

REMARKS. *Birrana* is somatically very similar to *Megateg* but the male palpal bulb shows strong similarities to *Kilyana hendersoni*, sp. nov.

INCLUDED SPECIES. *Birrana bulburin* sp. nov.

Birrana bulburin sp. nov.
(Figs 35-38; Table 14)

ETYMOLOGY. Aboriginal word for the type locality.

MATERIAL. HOLOTYPE: ♂, Bulburin SF, 24°30'S 151°35'E, SE.Q, rainforest, pitfall, 1 Jun-5 Oct 1974, G& S. Monteith, QM S31408. PARATYPE. Allotype, ♀, as for holotype, QM S31409.

DIAGNOSIS. As for genus.

DESCRIPTION. Holotype ♂. Carapace 3.48 long, 2.80 wide. Abdomen 2.68, 2.40 wide.

Colour: carapace yellow brown with dark margins on undulating inner edge; central region darker with black margins laterally and posteriorly, dark margins near caput edge and diagonal from PLE. Abdomen dorsally fawn with dark shoulders, darker areas on abdomen light, mottled as pattern evident. Legs with double bands on distal femora, distal patellae, tibiae and metatarsi but bolder on III, IV. Abdomen ventrally with irregular dark flecks centrally. Sternum yellow-brown with slight radial tip shadows. Black stripes down chelicerae; reddish brown dagger mark anterior on abdomen.

Eyes: almost in 3 rows, 2 4 2. AME:ALE: PME:PLE, 6:6:8:8. Front of ALE out back edges of AME; front edge of PLE behind back edge of PME; eyes of back row largest. AM-AM=6, AM-AL=6, PM-PM=8, PM-PL=9, AL-PL= 5. Group front width: backwidth: length, 37:47:21. ALE closer to PLE than AME.

Chelicerae: r= 3 small.

Spines. I: fe pv1p1d3r1; pa r1; ti p2r3pv5rv4; me p2r2v2.2.2. II fe, p2d3r2; pa r1; ti p2r3pv5rv4; me p3r3v2.2.2. III: fe p4d3r2; pa r1; ti p2d2r2v2.2.2; me p1.2.2r1.1.2v2.2.2. IV: fe p2d3r1; pa r1; ti p2d2r2v.2.2.2; me p1.1.1.1.1r1.1.1.2v2.2.2. Palp: fe p1d1.2.

Legs: scopula absent. Tarsal rod at basal 1/5th, low on I, II; raised, distinct on III, IV. Tibial crack 1-IV prolateral and retrolateral distinct. Trochanteral notches shallow, symmetrical, 3× wider than deep but becoming shallower from IV to almost indistinct on I.

Claws: with 2 long and 1 short tooth on all.

Abdomen: anterior face with pair of concave 'scutes'.

Palp (Figs 36A,B, 37A,B): tibia with only small conical mound retrolaterally, most distinct dorsally. *Cymbium*: asymmetrically folded to form short shallow groove on retro-apical corner; margin wide, distally narrow elsewhere with thin darkly selerotised retromargin; probasally with distinct rounded lobe dorsal scopula for distal 1/3. Tegulum mirrored C-shape, deep basally with short thorn opposite base of median apophysis. Median apophysis a rectanguloid scoop with a small twisted pair of hooks, twisted in opposed planes with (bivalve) shell-like translucent shield at its retrobase; median apophysis free, surrounded by tegular ring distal

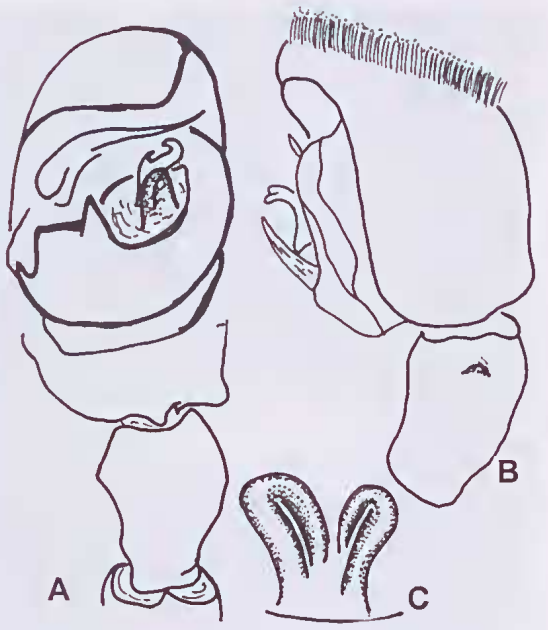

FIG. 37. *Birrana bulburin*, sp. nov., A, B, ♂ palpal tibia, cymbium & bulb; A, with patella, ventral view; B, retrolateral view; C, ♀ vulva.

of tegulum is weakly selerotised. Subtegular tongue narrow, transverse with long sclerotised groove behind embolus. Embolus originates proapically in gradual curve to retro-corner opposite cymbial groove.

Allotype ♀. Carapace 4.00 long, 3.20 wide. Abdomen 4.40, 3.68 wide.

Colour: As male but legs more boldly banded, most evident mottling on ventral femora. Deep Y-shaped dark mark on sternum, inner corners and edges of coxae dark.

Chelicerae: 3p, 3r.

Eyes: AME: ALE: PME: PLE, 4:4:6:6. Front of ALE well behind back of AME. Front edge of PLE is behind back of PME. Interspaces: AM-AM=1.3; AM-AL=1.8; PM-PM=2.8; PM-PL=2.5; AL-PL=2.8. Group front width: back width: length, 34:44:18.

Legs: scopula weak to absent on tarsi I, II. Tarsal rod low on I, a distinct lobe on IV. Claw tufts strong, similar on all.

Spines: I: fe pv1p1d1; pa 0; ti pv5rv4; mc v2.2.2. II: as for I but fe p1d1. III: fe p2d2r1; pa r1; ti p2d1r2v2.2.2; me p2.1.2r1.2.2v2.2.2. IV: fe p2d2r1; pa r1; ti p2d2r2v5; me p1.1.1.2r1.1.2.2v7. Palp: fe d1.2; pa 0; ti p2d1; ta p3d1r1.

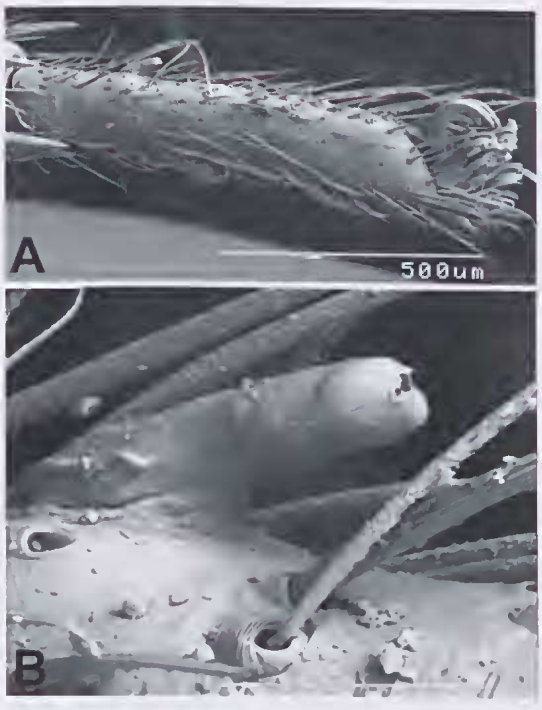

FIG. 38. *Birrana bulburin*, sp. nov., ♂. A, tarsus I showing claws & tarsal rod (B), retrolateral view.

Claws: with 2-3 short teeth on palp & legs.

Epigyne (Fig. 36E): broad, ovoid with wide, transverse recurved ridges posteriorly, lateral ovoid depression and short broad posterior median ridge; internally, a short broad lobe folding back on itself.

DISTRIBUTION AND HABITAT. Rainforest at Bulburin State Forest, SE Qld.

CLADISTICS. *Birrana* is considered the sister group of *Megateg* and *Krukt* with which it shares the tarsal rod albeit clearly shorter. *Huntia murrindal* also possesses a tarsal rod but without males the homology of the rod cannot be established. Baehr (2003) found a similar overall pattern in *Tropasteron* with unresolved relationships of the Wet Tropics species having a sister group in the Eungella region.

BIOGEOGRAPHY. For some spider groups, the Bulburin forests are where northern taxa reach their most southern and disjunct distribution and the northern limit of some southern taxa. Baehr (2003) found that in the Zodariidae, that point was at more northern at Eungella, west of Mackay.

TABLE 14. Leg measurements of *Birrana bulburin*, holotype male and allotype female.

Male	I	II	III	IV	Palp
Femur	2.00	2.07	2.00	2.23	1.15
Patella	1.00	1.08	1.00	1.00	0.54
Tibia	2.23	1.77	1.46	2.00	0.54
Metatarsus	1.85	1.61	1.61	2.61	0.92
Tarsus	0.85	0.77	0.69	1.08	
Total	7.93	7.30	6.76	8.92	3.15
Female	I	II	III	IV	Palp
Femur	2.07	2.00	2.00	2.38	1.08
Patella	1.23	1.08	1.00	1.31	0.61
Tibia	1.92	1.69	1.31	2.00	0.69
Metatarsus	1.61	1.31	1.46	2.46	0.92
Tarsus	0.77	0.92	0.77	1.00	
Total	7.60	7.00	6.54	9.15	3.30

Kilyana gen. nov.

TYPE SPECIES. *Kilyana hendersoni*, sp. nov.

ETYMOLOGY. A random combination of letters; the gender is masculine.

DIAGNOSIS. Differs from *Krukt*, *Megateg*, and *Birrana* in the absence of a tarsal rod and from *Huntia* Gray & Thompson, 2001 in the presence of claw tufts and only two claws.

DESCRIPTION. As for *Megateg* but: *Legs*. Scopula present and usually distinct on tarsi I-IV of females, but only weak on metatarsi I, II. Males have scopula on palpal cymbium dorsally and in some species also tarsi. All pedal tibiae basally cracked. 2 claws; strong separate claw tufts; with additional cluster of finely fimbriate hairs in diamond-shaped area below claws. Tarsal organ set at distal quarter of tarsus, low with ovoid aperture. Bothria with 6 transverse ridges; trichobothria in single irregular line on tarsi.

Spines. Females, legs I, II: tibia proventrally 5, retroventrally 4 thick spines on raised based; metatarsi with 3 pairs of strong spines ventrally.

Male Palp. Tibia smaller than patella; tibial apophysis weak to absent, single to tripartite, sometimes simply a long deep groove, apophyses retrolateral to retrodorsal in position. Cymbium with dorsal scopula, apically truncate and asymmetrical and forming a channel retrodistally in which embolus lies. Tegulum large, roughly mirrored L-shape and ventral. Median apophysis large, free and sometimes with conducting groove along distal edge; in some species a

weakly selerotised spine-like process arises retrobasally beside median apophysis. Embolus originates probasally as flattened cordate plate and quickly tapers to grooved whip traversing bulb but without conductor; a subtegular tongue-like conducting groove lies distal and parallel to embolus. In females, the enlarged base of the embolus can be found broken off ectally in copulatory groove. In *Kilyana hendersoni*, an additional selerite, also mapping the embolus, has long filiform lateral hairs.

Epigyne: basically a flattened plate with transverse copulatory groove; vulva simple C-shaped or S-shaped.

Spinnerets: PMS of females dorsally with long row of spigots. Colulus broad triangular fleshy and hirsute.

DISTRIBUTION AND HABITAT. Rainforests of SE Qld and N NSW.

INCLUDED SPECIES (All new). *K. bicarinatus*; *K. campbelli*; *K. corbeni*; *K. dougcooki*; *K. eungella*; *K. hendersoni*; *K. ingrami*; *K. kroombit*; *K. lorne*; *K. obrieni*.

CLADISTICS. Two groups are readily evident in *Kilyana*. The conformation of the male palpal bulbs and tibial apophyses in *K. corbeni* and *K. ingrami* are very similar: synapomorphies are the large single, scooped, sail-like median apophysis (e.g., Fig. 49A) and tripartite tibial apophysis (e.g., Fig. 49F). The second group includes *K. bicarinatus*, *K. hendersoni*, *K. kroombit*, and possibly *K. lorne*. Their synapomorphy is that the tibial apophysis is simply a long retrolateral groove. To some extent, the tibial apophyses of *K. obrieni* and, to a lesser extent, *K. campbelli* are similar in that the processes form a broad open valley which could be considered homologous with the groove. That latter wider group shares the presence of a bipartite median apophysis with the second lobe flexibly joined to the base of the main lobe. The presence of long groove on the distal edge of the median apophysis (Figs 43B, 49C,D) of *K. bicarinatus* and *K. ingrami* in which the embolus lies is considered a conductor analogue and homoplasious within the group. To maintain otherwise would require many homoplasies in *K. corbeni* and *K. ingrami* which differ primarily in the presence of the groove. The tibial apophysis of *Birrana* is very subtle and may be taken to be a reduced form of the groove. However, a parallelism would be required to explain the tarsal rod in *Birrana* (albeit shorter) and *Megateg* plus *Krukt*. The form of the male palpal bulb of *Birrana* also shares the sausage-shaped transverse tegulum and the elongate transverse embolus. At present, these are considered parallelisms. Hence, the cladogram of *Kilyana* is:

(*corbeni-ingrami*)(*dougcooki*((*campbelli-lorne-obrieni*) (*bicarinatus-hendersoni-kroombit*))).

KEY TO THE SPECIES OF *KILYANA*

Males (using palp; males of *Kilyana eungella* unknown)

1. Retrolateral tibial apophysis weak or a longitudinal groove (Figs 41C, 43C, 47E) 2
   Retrolateral tibial apophysis with 3 strong processes, one with or without large apical spine (Figs 45E, 46C, 49E) 6
2. Retrolateral tibial apophysis a groove for length of tibia (Figs 41C, 43C, 51D) 3
   Retrolateral tibial apophysis not a groove but a pair of short convergent spines separated by depression (Fig. 47E) . . . . . *K. dougcooki*
3. Median apophysis massive, dominant and apically bifid (Fig. 43A) . . . . . *K. bicarinatus*
   Median apophysis small, much smaller than tegulum (Figs 41A, 51A, 53A) 4
4. Basal half of embolus cradled by long filamentous process (Fig. 41B) . . . . . *K. hendersoni*
   Basal half of embolus without juxtaposed long filamentous process (Fig. 53A) 5
5. Retrolateral tibial apophysis with distal spinose process adjacent to cymbial groove (Fig. 53D, E). . . . *K. lorne*
   Retrolateral tibial apophysis distally with truncate aspinose process (Fig. 51C) . . . . . *K. kroombit*
6. Median apophysis a large scooped plate (Figs 46A, 49A) 7
   Median apophysis not large and scooped (Figs 45D, 54A) 8
7. Median apophysis with distal edge deeply grooved (Fig. 49C) . . . . . *K. ingrami*
   Median apophysis without groove on distal edge (Fig. 46B). . . . . *K. corbenii*
8. Median apophysis a large central dominant complex process (Fig. 54A-C). . . . . *K. obrieni*
   Median apophysis a small retrolateral hook (Fig. 45A,D) . . . . . *K. campbelli*

Females (using epigyne; females of *K. campbelli* unknown)

1. Medial copulatory ridge wide, distinct (Figs 42A, 44B). 2
   Medial copulatory ridge short or indistinct (Figs 52A, 55B) 7
2. Medial copulatory ridges form Vee (Fig. 44B) . . . . . *K. bicarinatus*

Medial copulatory ridge straight, recurved, or paired lateral procurved ridges. 3

3. Medial copulatory ridge straight with large lateral lumens . . . . . *K. hendersoni*
   Medial copulatory ridge recurved, or paired lateral procurved ridges. 4
4. Medial copulatory ridge single and recurved 5
   Copulatory ridges paired lateral and procurved 6

5. Medial copulatory ridge deeply recurved (Fig. 46D) . . . . . *K. corbeni*
   Medial copulatory ridge not so recurved (Fig. 50A,B,D) . . . . . *K. ingrami*
6. Copulatory ridges deep, form semicircles (Fig. 47F); vulva ducts convoluted (Fig. 47G) . . . . *K. dougcooki*
   Copulatory ridges less deep not so recurved (Fig. 48C,D); vulva ducts simply form overlapping circle (Fig. 48A,B) . . . . . *K. eungella*
7. Medial copulatory ridge very short, a recurved circle (Fig. 52C) . . . . . *K. kroombit*
   Medial copulatory ridge short, straight (Fig. 55B) . . . . . *K. obrieni*

Kilyana hendersoni sp. nov.
(Figs 1, 35, 39-42; Table 15)

ETYMOLOGY. The specific epithet is a patronym in honour of Dr Ian Henderson, who kindly sponsored the research of the Queensland Museum.

MATERIAL. HOLOTYPE: ♂, Upper Brookfield, 27°30'S 152°55'E, SE.QLD, rainforest, litter, 1 Nov 1981, R. Raven, V. Davies, QM S31340. PARATYPES: Mt Glorious, 27°20'S 152°46'E, rainforest: 1 ♀, sieved litter, 20 Sep 1979, G. Monteith, QM S32984; 1 ♀, V.E. Davies, QM S32991; 1 ♀, flight intercept trap, Jan-Mar 1982, A. Hiller. QM S32989; ♂, barracks, 27°18'S 152°45'E, pitfall & intercept traps, 7 Dec 1991-6 Mar 1992, G. Monteith, QM S43399; 2 ♂♂, 13 Apr-26 May 1983, malaise trap, A. Hiller. ♂, Mt Mee, 27°03'S 152°41'E, rainforest, pitfall, 29 Nov 1991-8 Jan 1992, D.J. Cook, QM S30305; 1 ♀, Mt Nebo, 27°23'S 152°47'E, ex mud wasp nest, 28 Dec 1979, H. Evans, QM S32732; 1 ♀, Mt Nebo, 1/2 way down track in Reserve, 27°24'S 152°47'E, *Araucaria* notophyll vineforest, Dec 1980, A.Rozefelds, QM S39049. Upper Brookfield, 27°30'S 152°55'E, rainforest, litter: 1 ♀, 12 Jan 1982, QM S32987; 1 ♂ 1 ♀, 9 Nov 1975-27 Feb 1976, G& S. Monteith, QM S32983; allotype ♀, QM S31341; 1 ♂, 14 Jul 1981 or 1 Nov 1981, R. Raven, V. Davies, QM S31342; 2female, 17-31 Aug 1981, R. Raven, V. Davies, QM S32985. All in SE.Q. OTHER MATERIAL: QM S53413, QM S32986, QM S31343, QM S32988.

DIAGNOSIS. Males are easily recognised by the deeply grooved tibial apophysis and the filamentous brush paralleling the embolus; females are unusual in the large circular lateral depressions in the epigyne.

DESCRIPTION. Holotype ♂. Carapace 5.28 long, 3.76 wide. Abdomen 4.56, 3.12 wide.

Colour: Carapace orange brown with darker 'wedges' along striae, most evident posteriorly; hoary white hairs in band from PLE back to caput margin. Abdomen yellow brown speckled with 2 pair darker sigilla anteriorly, becoming darker brown posteriorly; ventrally yellow brown with black hair and pigmentation medial quadrangle flanked by 6-8 small but distinct black irregular markings. Legs orange brown without darker annulations; sternum, labium and all coxae yellow to orange brown.

Eyes: AME:ALE:PME:PLE, 12:12:12:14. Eye group front width: back width: length, 64:89:39. Interspaces: AME-AME, 0.8; AME-ALE, 0.6; PME-PLE, 1.6; PME-PME, 1.1. Centres of ALE cut back edge of AME. Front edge of PLE along back edge of PME.

Chelicerae: p=2-3; r=3.

Spines: I: fe pv1p2d3r4; pa r1; ti p3d3r3pv5rv4; me p3r3v2.2.2. II: fe pv1p3d3r4; pa r1; ti p2d3r3pv5rv4; me p3r3v2.2.2. III: fe p3d3r5; pa r1; ti p2d2r2v2.2.2; me p2r3v2.2. IV: fe p4d3r2; pa r1; ti p2d2r2v2.2.2; me p3r3v2.2.2. Palp: fe p1d2r1.

Legs: scopula absent or at most very thin on tarsi I, II. Tibial crack I-IV prolaterally distinct; dark & grooved retrolaterally on I, II; not evident retrolaterally on III, IV. Trochanteral notches shallow, deeper in back of notch to front.

Palp (Fig. 41A-C): patella inerassate with distinct prolateral mound. Tibia short with deeply intucked groove for length retrolaterally; retrobasally with scooped process, retrodistally with tapering, slender spur. Cymbium squat, almost rectangular, deep; scopula dorsally for distal half; basodorsal process small, triangular. Paracymbial discontinuity absent. Tegulum wide, short; median apophysis a deep, broad, scooped hook with basal fold; leaflike; hyaline process arising basally; median apophysis base large, extensive, dominates bulb. Distal to embolus a tapering process with feathery filaments for its distal length. Embolus arises beside median apophysis & distal tegulum with bulbous origin quickly tapering to long slender tip; elongate triangular tapering subtegular tongue for basal half of embolus.

Allotype ♀: as for male except as follows.

Carapace: 5.92 long, 4.64 wide. Abdomen 8.48, 6.32 wide.

Colour: carapace like male but darker areas less distinct. Abdomen dorsally yellow brown with slightly darker areas posteriorly forming series of diamonds medially. Sternum orange brown, labium & maxillae dark brown, coxae yellow brown. Abdomen ventrally yellow brown with irregular dark medial area. Legs red brown without annulations.

Chelicerae: 3p, 3r.

Eyes: AME:ALE:PME:PLE, 11:14:13:15. Eye group front width: back width: length, 88:116:45. Interspaces: AME-AME, 1.5; AME-ALE, 1.3; PME-PLE, 2.3; PME-PME, 1.7. Centres of ALE

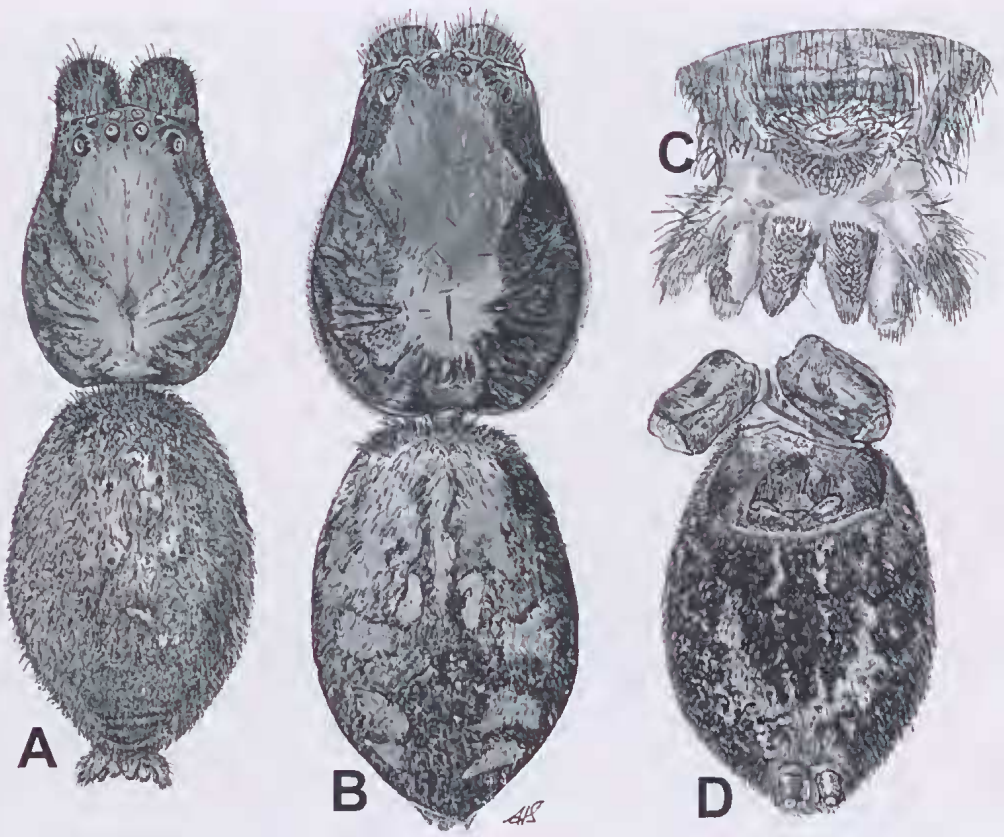

FIG. 39. *Kilyana hendersoni*, sp. nov., ♀. A, B, cephalothorax and abdomen, dorsal view; C, spinnerets, dorsal view showing PMS with biserial row of spigots dorsally; D, abdomen, ventral.

behind back edge of AME. Front edge of PLE is just behind back edge of PME.

Spines: I: fe pv1p1d3r2; pa 0; ti pv5rv4; me v2.2.2. II: fe pv1p2d3r3; rest as I. III: fe p4d3r4; pa r1; ti p2d2r2v2.2.2; me p5r4v2.2.2. IV: fe p3d3r1; pa r1; ti p2d2r2v5; me p4r4v7. Palp: fe d3; pa r1; ti p2; ta p3d1r1.

Legs: scopula distinct on tarsi I-IV, distal but distinct on metatarsi I, II; absent elsewhere.

Claws: 3 long teeth on palp & legs.

Epigyne (Fig. 42A-D,F): wide short, curled hoods laterally with broad medial mound and short transverse ridge.

DISTRIBUTION AND HABITAT. Rainforest around Brisbane and Mt Glorious.

REMARKS. Material from Mt Archer is excluded from the type series because it includes only females and is at the most outlying point.

TABLE 15. Leg measurements of *Kilyana hendersoni*, holotype male and allotype female.

Male	I	II	III	IV	Palp
Femur	3.77	3.77	3.46	4.08	1.92
Patella	1.77	1.85	1.61	1.54	1.08
Tibia	3.85	3.23	2.46	3.23	0.92
Metatarsus	3.31	3.23	3.08	4.31	1.77
Tarsus	1.46	1.38	1.15	1.69	
Total	14.16	13.46	11.76	14.85	5.69
Female	I	II	III	IV	Palp
Femur	3.23	3.38	3.00	3.92	1.77
Patella	2.07	1.92	1.61	1.77	1.00
Tibia	3.08	2.69	2.15	3.00	1.00
Metatarsus	2.69	2.46	2.54	4.15	1.31
Tarsus	0.92	1.08	0.85	1.31	
Total	11.99	11.53	10.15	14.15	5.08

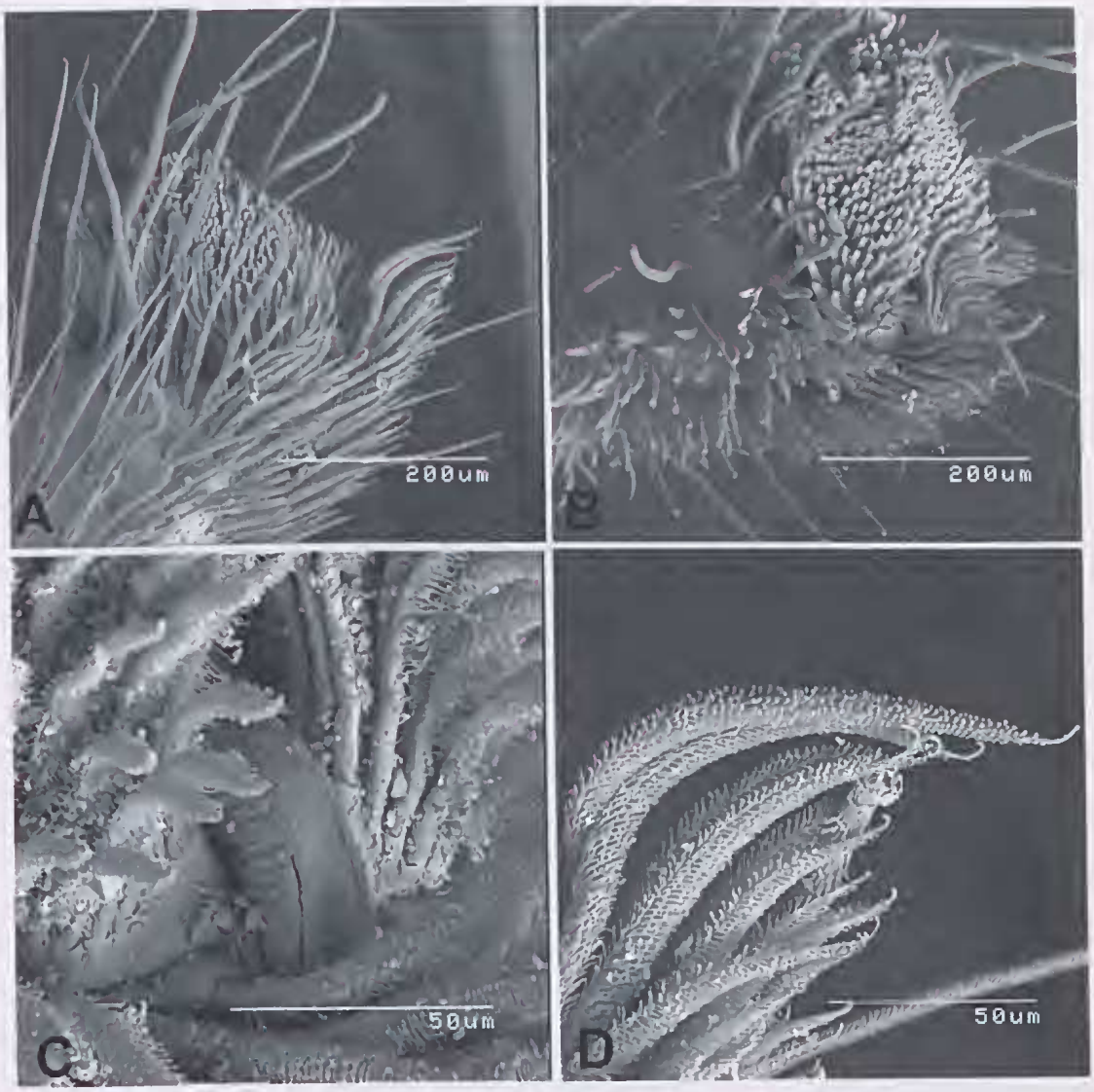

FIG. 40. *Kilyana hendersoni*, sp. nov., ♀, tarsus I, scanning electron micrographs. A, B, tip showing claw tufts and ventral scopuliform hairs, lateral (A) and axial (B) views; C, ridged sclerite below paired claws, axial view; D, ventral scopuliform hairs showing smoothly tapered tip.

Kilyana bicarinatus sp. nov.
(Figs 35, 43, 44A-C; Table 16)

ETYMOLOGY. The specific epithet alludes to the median apophysis of the male.

MATERIAL. HOLOTYPE: ♂, Bulburin SF, 24°30'S 151°35'E, SE.Q, 25-28 Mar 1977, R. Raven, V. Davies, QM S32739. PARATYPES: allotype ♀, as for holotype but 17-24 Mar 1975, R. Kohout, V.E. Davies, QM S53562; 2 ♂♂, same data but 24°31'S 151°29'E, 580m, M. Gray, C. Horseman, AM KS6793. OTHER MATERIAL: 9 juv., as for holotype, QM S31458.

DIAGNOSIS. Males resemble those of *Kilyana corbeni* in the flared form of median apophysis but more angular and the tibia apophysis is simple open groove; females differ in that the epigyne is medially two ridges forming a vee-shape; males and females differ from those of the sympatric *Birrana bulburin* in lacking a tarsal rod.

DESCRIPTION. Holotype ♂. Carapace 5.52 long, 4.24 wide. Abdomen 4.88, 2.80 wide.

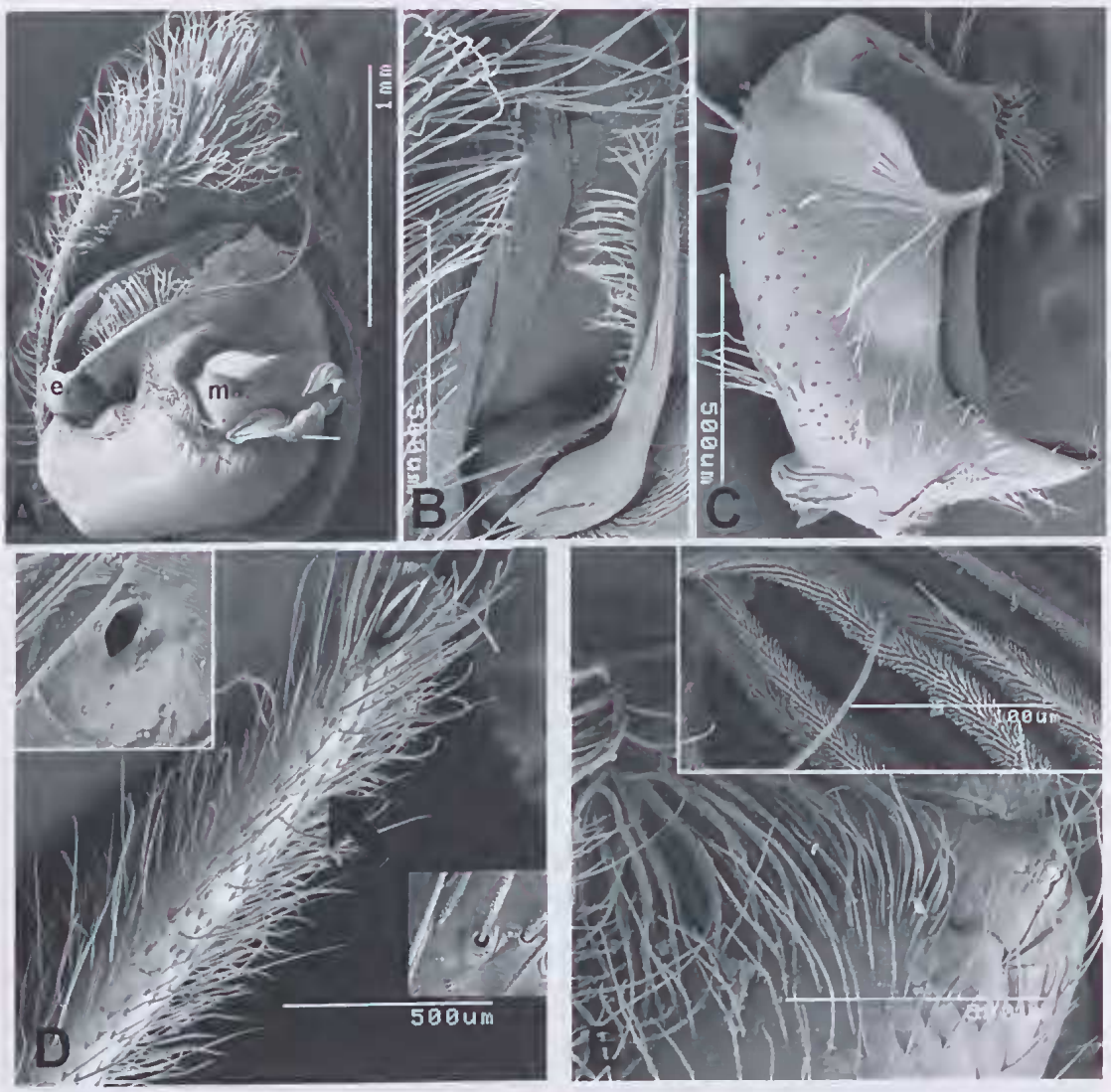

FIG. 41. *Kilyana hendersoni*, sp. nov., ♂ palp, scanning electron micrographs. A, cymbium and bulb, ventral view; B, embolus base with filamentous brush, prolateral view; C, tibia showing groove and basal process, ventral view; D, tarsus IV showing tarsal organ (arrow gives position, inset upper right) and trichobothrial cup (inset lower left); E, prolateral cheliceral face with thickened 'fang setae' (inset).

Colour: freshly moulted; carapace orange brown with fine dark radiating lines on caput and thorax, narrow black margin of closed semicircles; large dark bands down chelicerae; abdomen dorsally (slightly damaged) yellow brown with larger longitudinal pallid areas anteriorly forming into fine transverse lines posteriorly; venter with narrow black medial V broken by two pallid stripes (inferred from juvenile). Legs with bands, slightly paler than carapace, mottled brown under femora. Sternum yellow brown with 3 pairs dark spots opposite coxae I-III; maxillae and labium orange brown with darker central areas.

Eyes: Front edge of PLE just behind back edge of PME. AME:ALE:PME:PLE, 6:6:8:8. Eye group front width: back width: length, 36:49:51. Interspaces: AME-AME, 1.2; AME-ALE, 1.0; PME-PLE, 1.7; PME-PME, 1.3.

Spines: I: fe pv1p1d3r4; pa r1; ti p2d3r3pv5rv4; me p3r3v2.2.1. II: fe pv1p2d3r4; pa r1; ti p2d3r3pv5rv4; me p3r2v2.2.2.1. III: fe p4d3r3; pa r1; ti p2d2r2v2.2.2; me p1.2.2r1.1.2v2.2.2. IV:

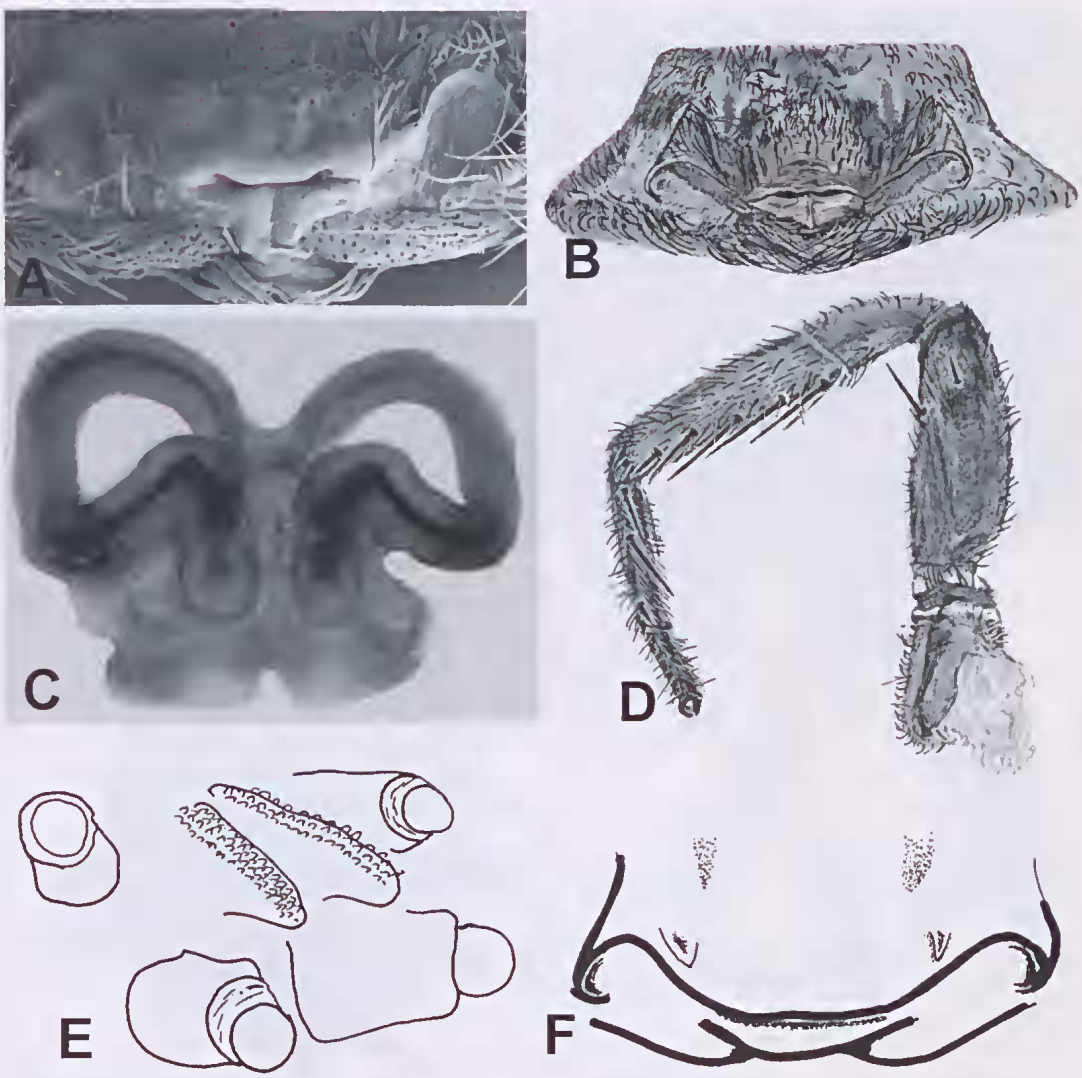

FIG. 42. *Kilyana hendersoni*, sp. nov., ♀. A, B, F, epigyne; C, vulva; D, leg I, prolateral view; E, spinnerets, axial view with PLS dorsal.

fe p3d3r2; pa r1; ti p2d2r2v.2.2.2; mc p1.1.1.2r1.2.2.2v2.2.2. Palp: fe p1d1.2. Matt of hairs on dorsal femora.

Legs: scopula absent. Claws with 3-4 long, wide teeth almost concealed by tufts. Tibial crack I-IV prolateral, more distal on I, II than III, IV. Trochanteral notches shallow, slightly asymmetrical, twice as wider as deep.

Palp (Fig. 43A-C): tibia short, no apophysis but retrodorsally with longitudinal keel and more centally an asymmetrical shallow trough. *Cymbium*: roughly rectangular with wide retrobasal edge and steep sides; prolateral paracymbial flange width forming retrodistal groove and shallow channel along basal fold; scopula dorsally for distal 1/3. Tegulum reverse L-shape, narrow basally and laterally narrow; long triangular translucent pallid flat plate near but not enclosing embolus basally. Median apophysis a large triangular plate slightly upcurved prolaterally with sharply reflexed triangular process or retrodistal corner; distally with long deep groove, functionally a conductor. Embolus lies in groove formed by distal edge of

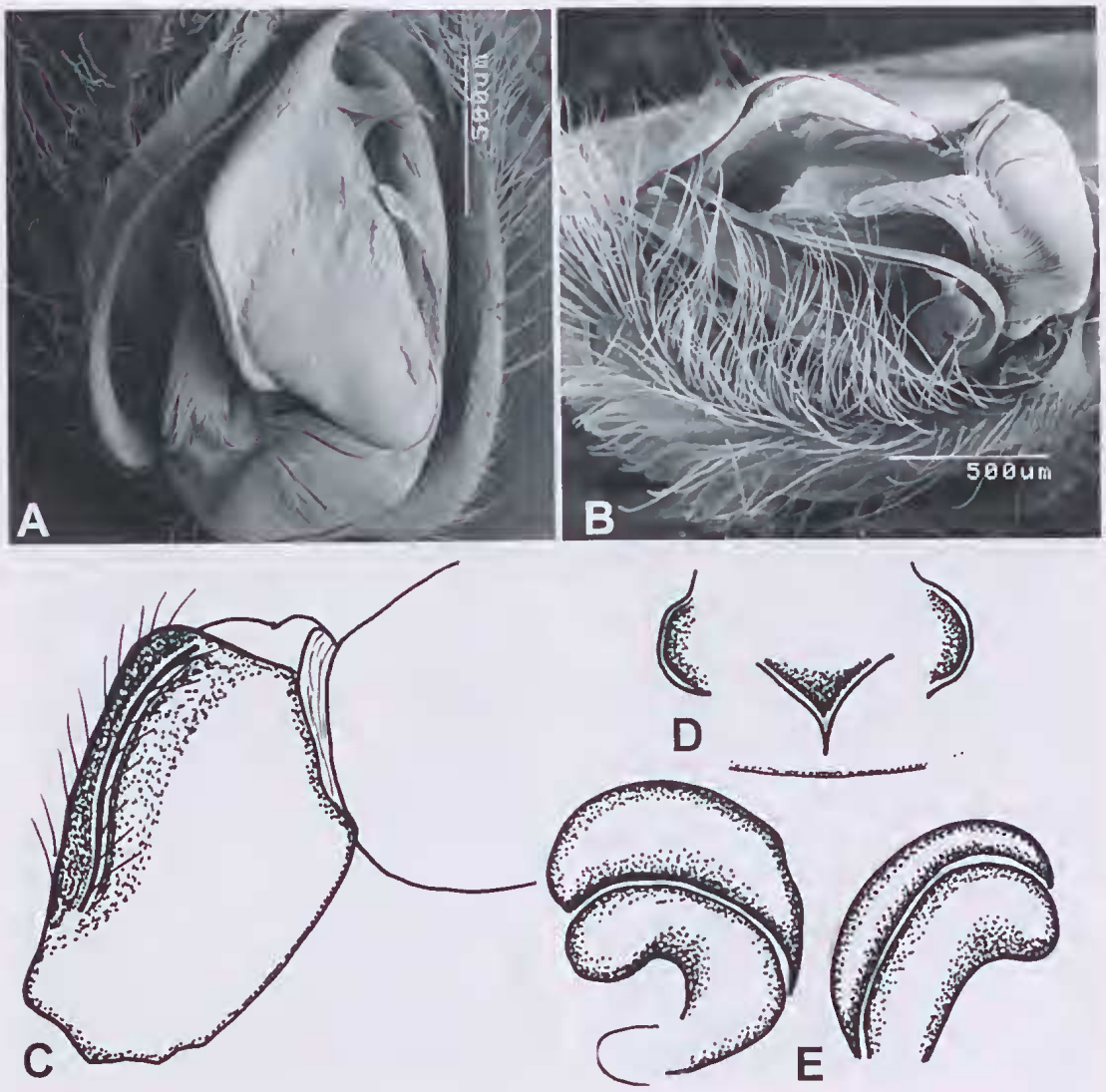

FIG. 43. *Kilyana bicarinatus*, sp. nov., ♂ palp A-C. A, B, bulb and cymbium, ventral (A) and prolateral (B) view; C, retrolateral tibial apophysis, retrolateral view showing groove; D, epigyne; E, vulva.

median apophysis but reaching paracymbial flange.

Allotype ♀. Carapace 5.70 long, 4.31 wide. Abdomen 5.64 long, 1.06 wide.

Like *Kilyana obrieni* but: *Colour*: carapace dark orange brown with fine dark radiating lines on caput; chelicerae dark reddish brown; abdomen dorsally fawn with no pattern evident. Legs orange brown.

Eyes: lateral eyes on common tubercle; AME on distinct mound.

Legs: scopula on metatarsi I, II in 3 lines; dense, uniform for length of tarsi I-IV.

Spinnerets: retracted; PMS with spigots in dorsal band and apically.

Epigyne (Figs 43D,E, 44B,C): wider than long with outer edges each defined by long concave ridge between which a broadly V-shaped pair of ridges converge posteriorly; vulva of two relatively large ducts overlying each other.

DISTRIBUTION AND HABITAT. Rainforest at Bulburin State Forest, SE Qld.

FIG. 44. *Kilyana bicarinatus*, sp. nov., ♀, A-C. A, cephalothorax & abdomen, dorsal view; B, epigyne; C, vulva. D, *Kilyana kroombit*, sp. nov., ♀, maxillae and labium, ventral view.

TABLE 16. Leg measurements of *Kilyana bicarinatus*, holotype male.

	I	II	III	IV	Palp
Femur	2.08	1.96	1.84	2.12	1.12
Patella	1.04	1.00	0.84	0.96	0.50
Tibia	1.88	1.64	1.36	1.92	0.50
Metatarsus	1.72	1.32	1.56	2.40	-
Tarsus	0.80	0.60	0.60	0.92	1.00
Total	7.52	6.52	6.20	8.32	3.12

Kilyana campbelli, sp. nov.
(Figs 35, 45, 46F-G; Table 17)

ETYMOLOGY. For Bruce Campbell, Deputy Director, Queensland Museum, 1964-1998.

MATERIAL. HOLOTYPE: ♂, Nimbin, 28°36'S 153°13'E, NE NSW, rainforest, 14 Jun 1982, A.Rozefelds, D.Sinelair, QM S31406. PARATYPES: allotype ♀, Terania Ck, near Lismore, NE NSW, 28°34'S 153°19'E, 340m, rainforest, April-May 1976, M. Gray, C. Horseman, AM KS 10090; 1 ♀ [2 juv.], same data, AM KS 10090; 1 ♂, Red scrub Flora Reserve, north of Lismore, NE NSW, 28°38'S 153°19'E, 1 Apr 1976, M. Gray, C. Horseman, AM KS 9190.

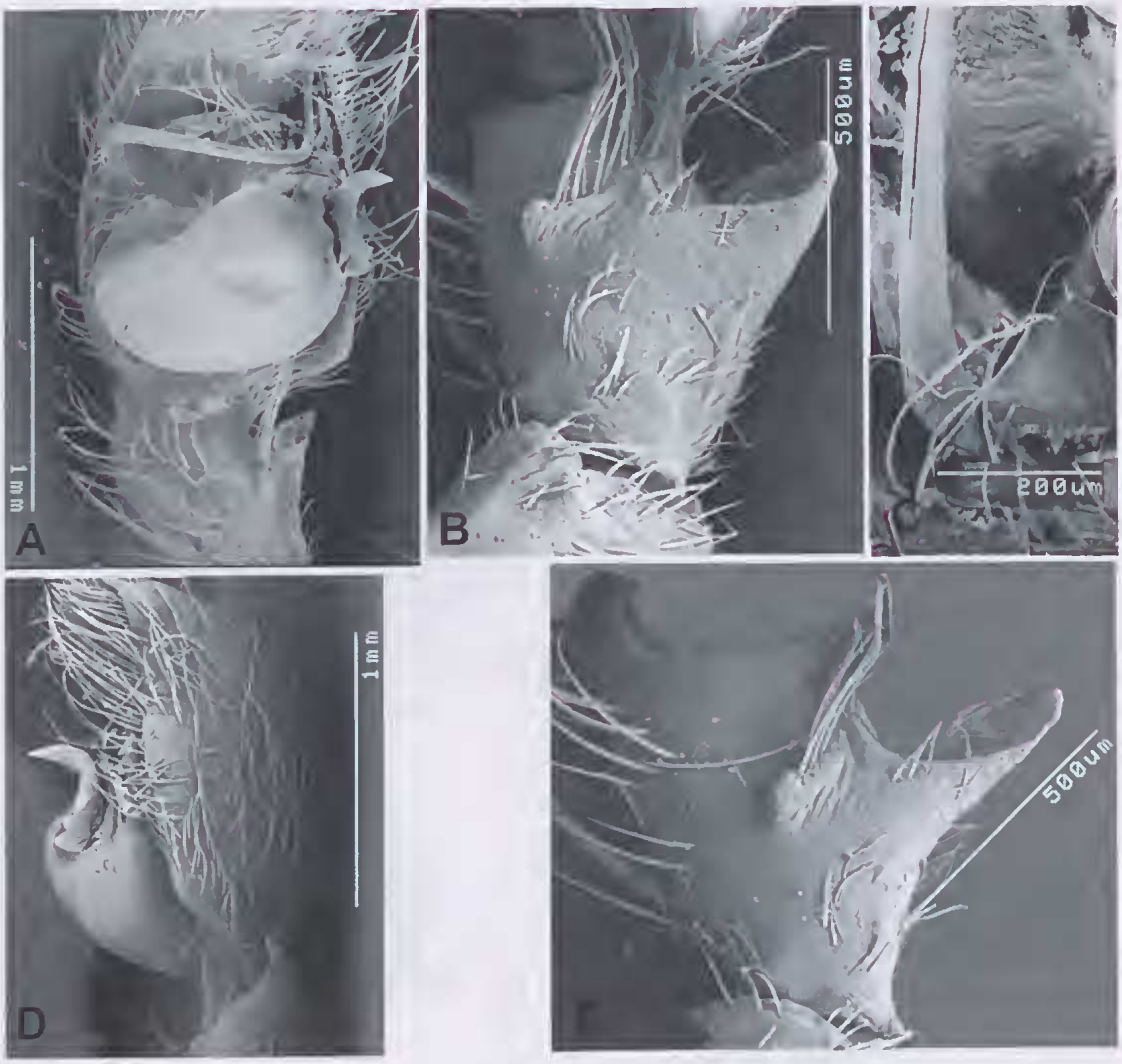

FIG. 45. *Kilyana campbelli*, sp. nov., ♂ palp, scanning electron micrographs. A, D, tibia and bulb, ventral (A) and retrolateral (D) view; B, E, tibia, retrolateral (B) and ventral (E) view.

DIAGNOSIS. Resembles *K. kroombit* in regular outline of the unsclerotised zone around the small median apophysis but the embolus lies transverse and the tibial apophysis is a flange not a longitudinal groove; females differ in that the epigyne is two distinct strongly procurved ridges posteriorly much like *Birrana bulburin* from which they differ in lacking a tarsal rod.

DESCRIPTION. Holotype ♂. Carapace 3.92 long, 2.96 wide. Abdomen 4.08, 2.80 wide.

Colour: carapace yellow brown with fine radiating dark lines on caput, wider bands on edges and ectal edges, small dark triangle anterior to fovea. Abdomen fawn with darker areas bounded by two fine pale lines and irregular pallid area anteriorly, dark area almost entire on posterior medial abdomen; shadows ventrally on central abdomen. Legs not banded, pallid. Sternum with darkened radial pattern centrally.

Eyes: AME:ALE:PME:PLE, 8:9:9:12. Eye group front width: back width: length, 51:66:32. Interspaces: AME-AME, 1.0; AME-ALE, 0.7; PME-PLE, 1.3; PME-PME, 1.6. Front of ALE cut through back edge of AME. Front edge of PLE along back edge of PME.

Spines: I: fe pv1p1d3r4; pa r1; ti p2d2r3pv5rv4; me p1r1v2.2.2. II: fe, p2d3r4; pa r1; ti p2d2r3pv5rv4; me p1r1v2.2.2. III: fe p4d3r4; pa

TABLE 17. Leg measurements of *Kilyana campbelli*, holotype male.

	I	II	III	IV	Palp
Femur	2.92	2.92	2.61	3.38	1.38
Patella	1.38	1.38	1.31	1.38	0.61
Tibia	3.00	2.69	1.85	2.69	0.77
Metatarsus	2.92	2.61	2.46	3.61	1.46
Tarsus	1.00	1.08	1.00	1.46	
Total	11.22	10.68	9.23	12.52	4.22

r1; ti p2d2r2v2.2.2; me p1.2.2 r1.1.2v 2.2.2. IV: fe p3d3r1; pa r1; ti p2d2r2v.2.2.2; me p1.1.1.2r2.2.2 v7. Palp: fe p1d1.2; pa 0; ti p2.

Legs: scopula absent. Claws with 2 long and 1 short basal tooth. Tibial crack on I-IV prolaterally distinct, less so retrolaterally. Trochanteral notches shallow, asymmetrical.

Palp (Fig. 45A-E): patella dorsal apex a sclerotised saddle at tibial juncture. Tibia across venter with low asymmetrical mound; tibia short, inerassate with large RTA twisted ventrally truncate to give concave edge; prodorsal and distally a broad concave trough runs diagonally to distal dorsal corner. Cymbial scopula dorsally for distal 1/8. Cymbium almost rectangular, rounded edges with broad anterior fold and wide retrodistal groove. Prolateral paracymbial flange a distinct low triangle basally. Tegulum broad, ovoid, basally; with ovoid retrolateral window with retrolateral small claw-like median apophysis. Embolus wide, flat, in prodistal origin reflexes back slender and slightly to base near tip of median apophysis then reflexes dorsally to lie near distal cymbial groove.

Allotype ♀, like male except:

Spinnerets: PMS dorsally with 2 lines each of 20-30 spigots.

Epigyne (Fig. 46F,G): roughly ovoid defined with two broad U-shaped ridges converging centrally to form narrow septum which is overlaid by n-shaped ridge.

DISTRIBUTION AND HABITAT. Rainforest in the Nimbin area of N NSW.

Kilyana corbeni sp. nov.
(Figs 35, 46A-E; Table 18)

ETYMOLOGY. For Chris Corben and his role in the discovery of the gastric brooding habits of the frog *Rheobatracus silus* Liem, 1973.

MATERIAL. HOLOTYPE: ♂, Booloumba Ck, Conondale Ra, 26°39'S 152°39'E, SE.Q, rainforest, pitfall, 29 Nov 1974-22 Feb 1975, G & S. Monteith, QM S31396. PARATYPES: allotype ♀, Booloumba Ck, Conondale Ra (low), 26°39'S 152°39'E, rainforest, pitfall, 29 Nov 1974-22 Feb 1975, G & S. Monteith, QM S31397; 1 ♂, same data, QM S31398; 1 ♂ 1 ♀, Conondale Ra, Sunday Ck, 26°43'S 152°34'E, rainforest, intercept flight trap, 29 Nov 1991-7 Jan 1992, D.J. Cook, QM S25182, QM S25184. All in SE.Q.

DIAGNOSIS. Males differs from those of the sympatric *K. ingrami* in lacking the distal groove on the median apophysis, dorsal tibial spines about 1/2 lateral (cf. equal) and tegulum has very long longitudinal component; females have the copulatory groove clearly inverted U-shaped and only about twice as wide as long whereas in *K. ingrami* it is broadly recurved and about 3.5 times wider than long.

DESCRIPTION. Holotype ♂. Carapace 6.24 long, 4.96 wide. Abdomen 5.52, 3.76 wide.

Colour: carapace yellow brown with broken dark areas along margins, laterally PLE on caput edge, two bands up posterior slope and triangular areas submarginally on interstriae, fovea red. Abdomen dorsally fawn with dark shoulders and small dark areas in posterior half, ventrally yellow brown with small dark areas. Femora yellow brown with broad ring at ends, tarsus yellow brown; rest reddish brown. Apical maxillae dark.

Eyes: AME:ALE:PME:PLE, 12:13:12:13. Eye group front width: back width: length, 79:100:41. Interspaces: AME-AME, 1.1; AME-ALE, 0.9; PME-PLE, 2.2; PME-PME, 1.6. Front of ALE cut along back edge of AME. Front edge of PLE behind back edge of PME.

Spines: I: fe pv1p1d3r4; pa r1; ti p2d3r3pv5rv4; me p2r2v2.2.2. II: fe pv1p2d3r4; pa r1; ti p2d2r3v2.2.2.2.2; me p3r3v2.2.2. III: fe p4d3r4; pa r1; ti p2d2r2v2.2.2; me p1.2.2r2.1.2v 2.2.2. IV: fe p4d3r1; pa r1; ti p2d2r2 v.2.2.1; me p4r5v1.2.2.2. Palp: fe p1d1.2.

Legs: scopula absent; light pile of yellow brown hairs. Large pallid RCH. Tibial crack on I-IV distinct. Trochanteral notches shallow, symmetrical.

Palp (Fig. 46A-C): patella short, not inerassate with broad sclerotised ledge dorsodistally. Tibia: ridge joins basoventrally with low curved ridge and glabrous shallow area distally, retrolaterally with large basal process bearing large socketed truncate spine; retrodistally with narrow bluntly pointed process; mid-dorsally with bowed process bearing triangular large socketed spine much smaller than retrolateral. Cymbium apically widely folded truncate ovoid;

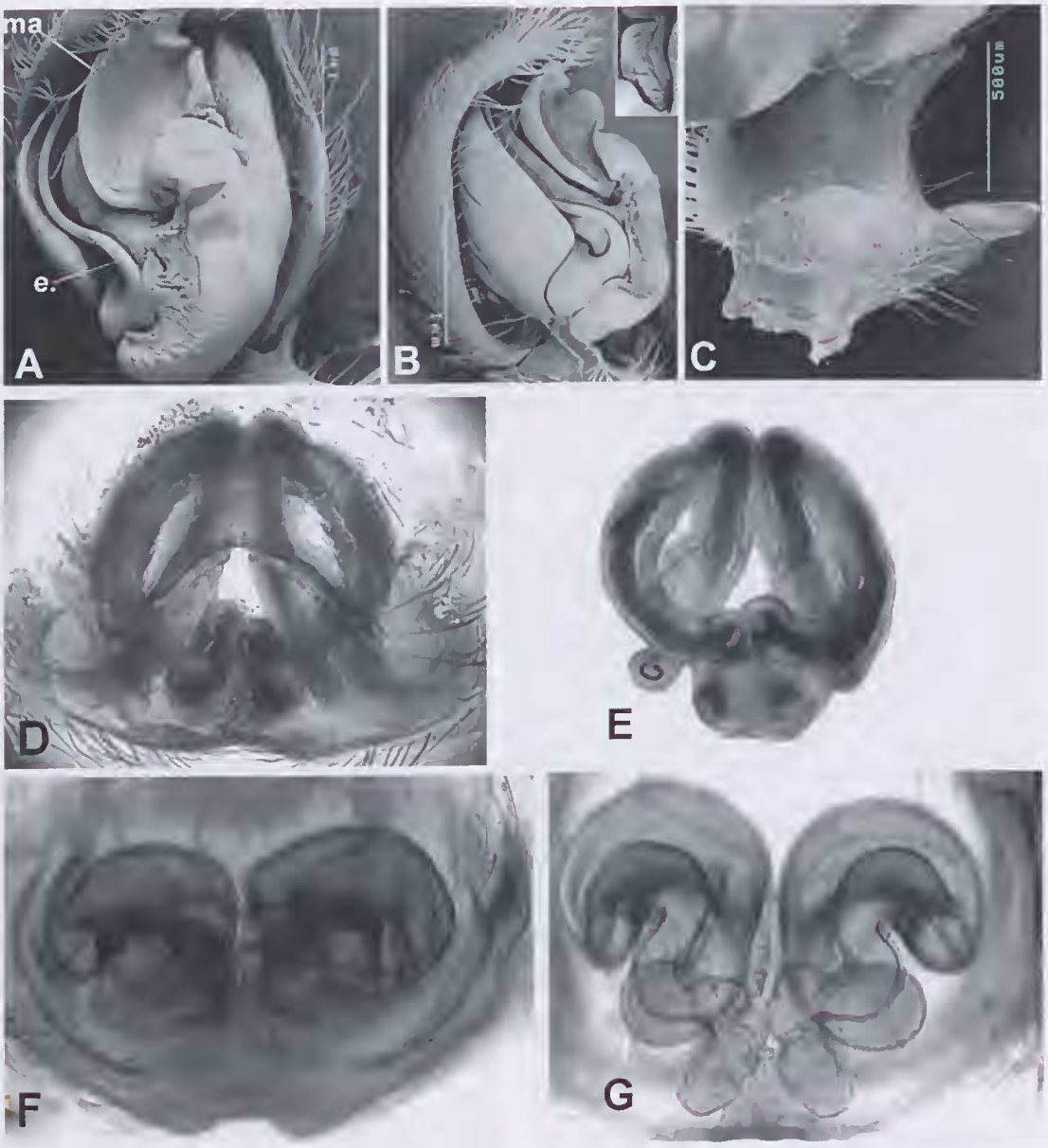

FIG. 46. A-E, *Kilyana corbeni*, sp. nov., scanning electron micrographs. A-C, ♂ palp. A, B, cymbium and bulb, ventral (A) and prolateral (B) view with inset showing process beside median apophysis, retrolateral view; C, tibia and cymbium, showing tibial apophysis, ventral view. D-E, ♀; D, epigyne, E, vulva. F-G, *Kilyana campbelli*, sp. nov., scanning electron micrographs, ♀; F, epigyne, G, vulva.

retrolaterally with wide heavily sclerotised angular ridge distally joining with distal fold to make short deep groove; scopula dorsally for distal 1/4; paracymbial discontinuity a slight extension. Tegulum large, reverse C-shaped, but basal lobe more long than across basally. Median apophysis is free of tegulum, a large open scoop or spoon-shaped process apically twisted. Embolus arises probasally with subtegular shield and tegulum; origin conical, reflexes in S-shape from short basal to prolateral and emerging in long tapering tip in cymbial fold; as for all species prolateral cymbial edge with shield of long curved setae (in right line) extending into embolus.

TABLE 18. Leg measurements of *Kilyana corbeni*, holotype male and allotype female.

Male	I	II	III	IV	Palp
Femur	4.23	4.31	3.92	4.69	2.15
Patella	2.00	2.15	1.85	1.85	1.00
Tibia	4.23	3.69	3.00	3.85	0.54
Metatarsus	4.00	3.69	3.46	4.61	2.31
Tarsus	1.54	1.38	1.31	1.69	
Total	16.00	15.22	13.54	16.69	6.00
Female	I	II	III	IV	Palp
Femur	3.31	3.15	2.92	3.69	1.61
Patella	1.61	2.07	1.31	1.77	0.69
Tibia	2.85	2.69	2.00	3.08	0.85
Metatarsus	2.38	2.31	2.31	3.61	1.31
Tarsus	0.77	0.85	1.00	1.15	
Total	10.92	11.07	9.54	13.30	4.46

Allotype ♀, like male except: Carapace 5.36 long, 4.64 wide. Abdomen 8.80, 7.20 wide.

Chelicerae: 3p, 3r.

Eyes: AME:ALE:PME:PLE, 12:12:14:15. Eye group front width: back width: length, 80:106:44. Interspaces: AME-AME, 1.3; AME-ALE, 1.2; PME-PLE, 2.0; PME-PME, 1.5.

Legs: scopula absent. Claws with 3 short teeth on palp & legs.

Spines: I: fe pv1p1d3r2; pa 0; ti pv5rv4; me v2.2.2. II: as for I but fe pv1p2d3r3. III: fe p4d3r4; pa r1; ti p2d2r2v2.2.2; me p1.1.2r2.1.2v2.2.2. IV: fe p3d3r1; pa r1; ti p2d2r2v5; me p1.1.1.2r2.1.1.2 v7. Palp: fe d1.2; pa 0; ti p2d1; ta p3d1r1.

Epigyne (Fig. 46D,E): a broad recurved groove; vulva G-shaped.

Spinnerets: PMS each with two lines of spigots dorsally.

DISTRIBUTION AND HABITAT. Rainforest at Booloumba Ck, Conondale Range, SE Qld, where it is sympatric with *Kilyana ingrami*.

Kilyana dougcooki sp. nov.
(Figs 35, 47; Table 19)

ETYMOLOGY. For Doug Cook.

MATERIAL. HOLOTYPE: ♂, Upper Tallebudgera Valley, 28°15'S 153°16'E, SE.Q, rainforest, Mar-Jul 1985, D.J. Cook, QM S31403. OTHER MATERIAL. QM S25073

DIAGNOSIS. Males differ from those of *K. ingrami* in pincer-like tibial apophysis and simple, longitudinal, hooked median apophysis.

TABLE 19. Leg measurements of *Kilyana dougcooki*, holotype male.

	I	II	III	IV	Palp
Femur	3.46	3.61	3.31	3.92	1.77
Patella	1.77	1.69	1.61	1.46	0.85
Tibia	3.92	3.38	2.46	3.31	0.69
Metatarsus	3.61	3.08	3.08	3.69	1.54
Tarsus	1.38	1.23	1.15	1.54	
Total	14.14	12.99	11.61	13.92	4.85

DESCRIPTION. Holotype ♂. Carapace 4.88 long, 3.60 wide. Abdomen 3.68, 2.64 wide.

Colour: carapace orange brown with dark hairs along strial edge. Legs without bands. Abdomen fawn brown, anteriorly pallid, posterior central area with irregular dark mottling; ventral abdomen pallid with dark areas. Sternum pallid with dark radial bands.

Eyes: AME:ALE:PME:PLE, 10:9:11:12. Eye group front width: back width: length, 60:83:35. Interspaces: AME-AME, 1.1; AME-ALE, 1.0; PME-PLE, 1.7; PME-PME, 1.3. Front of ALE well back from back of AME. Front edge of PLE along back edge of PME.

Spines: I: fe pv1p1d3r4; pa r1; ti p2d3r3pv5rv4; me p3r3v2.2.2. II: fe pv1p3d3r4; pa r1; ti p3d3r3pv5rv4; me p3r3v2.2.2. III: fe p4d3r4; pa r1; ti p3d2r2v2.2.2; me p1.2.2r2.2v2.2.2. IV: fe p4d3r2; pa r1; ti p2d2r2v.2.2.2; me p1.1.2r2.2.2v7, unpaired. Palp: fe p1d1.2.

Legs: scopula absent. Claws with 2-3 small teeth; tufts united. Tibial crack I-IV prolaterally distinct, weakly discernible retrolaterally on III, IV. Trochanteral notches shallow, asymmetrical.

Palp (Fig. 47A-E): *Tibia*: incrassate distally with raised ovoid diagonal mound retrodistally; mound with small conical reddish process turned distally toward large curved megaspine (socketed) with mounded base, midventrally with low rounded unsclerotised mound with glabrous area prolaterally. *Cymbium*: subovoid; retrobasally folded widely narrow distally to form shallow groove; margin wide prodistally; dorsal scopula for distal 2/5. *Bulb*: tegulum large, scoop-shaped on retrobasal corner; median apophysis small, roughly rectangular with small medial point and larger apical distal triangular tip; embolus originates on prolateral edge tapers quickly into smooth curving tip terminated near cymbial groove.

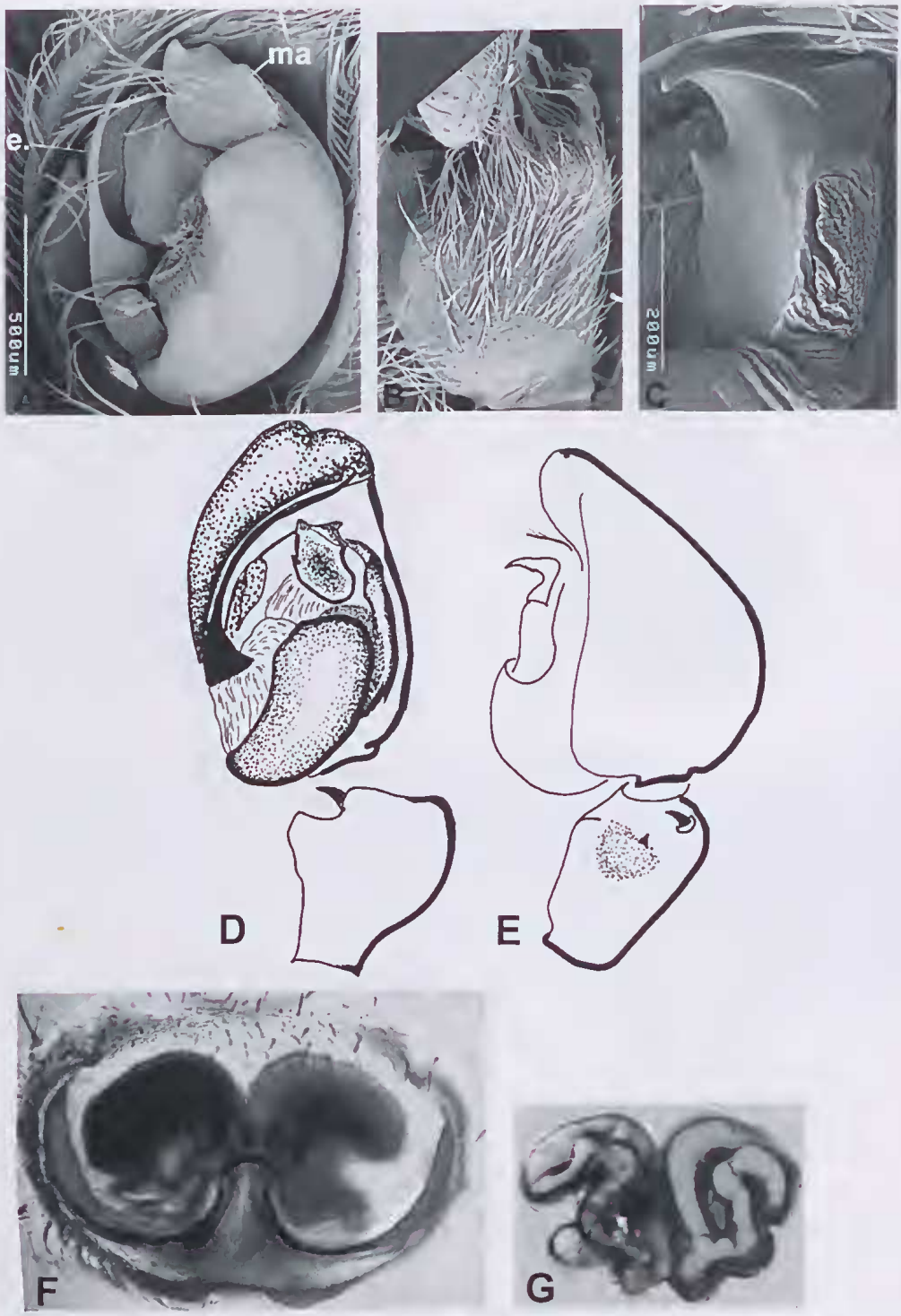

FIG. 47. *Kilyana dougcooki*, sp. nov. A-C, ♂ palp, seanning eleetron mierographs; A, eymbium and bulb, ventral view; B, tibial apophysis, retrolateral view; C, median apophysis, ventral view. D-E, ♂ palp; D, E, tibia, eymbium and bulb, ventral (D) and retrolateral (E) view. F-G, ♀; F, epigyne, G, vulva.

DISTRIBUTION AND HABITAT. Upper Tallebudgera Valley and probably also Mt Tamborine, in rainforest.

REMARKS. Because the female and male have not been taken at the same locality and the two localities (Mt Tamborine, Upper Tallebudgera Valley, respectively), the female is not designated a paratype but the epigyne is figured (Fig. 47F,G).

Kilyana eungella, sp. nov.
(Figs 35, 48; Table 20)

ETYMOLOGY. A noun in apposition taken from the type locality.

MATERIAL. HOLOTYPE: ♀, Broken R, Eungella NP, 21°11'S 148°31'E, MEQLD, rainforest, 4 Sep 1988, R.Raven, J.Gallon, T.Churchill, QM S13870. PARATYPES: ♀, Pease's Lookout, Eungella NP, 21°07'S 148°31'E, rainforest, pitfall & intercept traps, 17 Nov 92-mid Apr 93, GMonteith D.Cook, QM S31404; 1 ♀, Eungella (schoolhouse), 21°08'S 148°29'E, rainforest, pitfall, 11-14 Feb 1986, R.Raven, J.Gallon, QM S29310; 2 ♀, Mt William, Dalrymple Heights, 21°01'S 148°36'E, 1120m, rainforest, Apr 1975, M. Gray, C. Horseman, AM KS6565. All in MEQ. OTHER MATERIAL. AM KS6383.

DIAGNOSIS. The paired broadly procurved copulatory grooves in the female are unique in the genus.

DESCRIPTION. Holotype ♀. Carapace 5.12 long, 4.00 wide. Abdomen 7.12, 5.36 wide.

Colour: carapace, legs and abdomen yellow brown. Carapace with darker radial pattern. Chelicerae without stripes. Abdomen fawn with slightly darker shoulders. Legs III, IV with distinct bands and mottling sternum with slightly darker radial lines.

Chelicerae: 3p, 3r, all large.

Eyes. AME:ALE:PME:PLE, 10:11:13:12. Eye group front width: back width: length, 73:103:36. Interspaces: AME-AME, 1.8; AME-ALE, 1.1; PME-PLE, 2.6; PME-PME, 1.8. Front of ALE behind back edge of AME. Front edge of PLE is just behind back edge of PME.

TABLE 20. Leg measurements of *Kilyana eungella*, holotype female.

	I	II	III	IV	Palp
Femur	2.77	2.61	2.54	3.15	1.38
Patella	1.00	1.54	1.38	1.38	0.69
Tibia	3.31	2.15	1.69	2.54	0.85
Metatarsus	2.23	2.07	2.07	3.31	1.15
Tarsus	0.85	0.85	0.61	1.15	
Total	10.16	9.22	8.29	11.53	4.07

Spines: I: fe pv1p1d1; pa 0; ti pv5rv4; me v2.2.2. II: as for I but fe pv1p2d3r3. III: fe p3d3r2; pa 0; ti p2d2r2v2.2.2; me p1.2.2r2.1.2v2.2.2. IV: fe p3d3r1; pa r1; ti p2d2r2v5; me p1.1.1.2r 2.2.2v2.2.3. Palp: fe d1.2; pa 0; ti p1r1; ta p3d1.

Legs: scopula very weak on metatarsi, tarsi I, II. Claws: 2-3 short on palp & legs. Trochanteral notches very shallow.

Epigyne (Fig. 48A-D): a broad shallow ovoid plate with 2 distal smoothly curving groove leading to spiralled spermathecae.

Spinnerets: PMS each with a long dorsal ridge. Colulus a triangular plate.

DISTRIBUTION AND HABITAT. Rainforest on the Eungella Range, west of Mackay, mid E Qld.

REMARKS. As most of the material has 3 teeth retrolaterally on the chelicerae and only one has 4 teeth (QM S31340) but the epigynes & vulva of both are alike, the quadridentate condition is considered an intraspecific variant. The vulva of QM S31304 are relatively slightly longer than the holotype (Fig. 48B).

Kilyana ingrami sp. nov.
(Figs 35, 49, 50; Table 21)

ETYMOLOGY. For Dr Glen Ingram.

MATERIAL. HOLOTYPE: ♂, Conondale Ra, 26°45'S 152°37'E, SE.Q, 1-3 May 1976, R.J. Raven, QM S31393. PARATYPES. ♂, Booloumba Ck, Conondale Ra, 26°39'S 152°39'E, rainforest, litter, 13-18 May 1976, R.J. Raven, QM S31395; Allotype ♀, Conondale Ra, 26°45'S 152°37'E, 1-3 May 1976, R.J. Raven, QM S31394; 1 ♂ [4 juv.], same data, QM S29345; 1 ♂, Little Yabba Ck, 26°37'S 152°41'E, rainforest, pitfall, 10 Aug-9 Nov 1974, G& S. Monteith, QM S31399; 5 ♂, Mapleton Falls NP, 26°38'S 152°51'E, rainforest, flight intercept trap, 8 Jan-3 Mar 1992, D.J. Cook, QM S39589; 1 ♂ 1 ♀, Tungi Ck, 26°40'S 152°28'E, rainforest, pitfall, 10 Nov-29 Dec 1974, G& S. Monteith, QM S31407; 1 ♀, same data but 18 Dec 1996-20 Jan 1997, G Monteith, QM S39093; 1 ♀, Cold Ck, SE. QLD, 26°28'S 152°41'E, 122m, 16 June-23 Aug 1975, G.B. & S.R. Monteith, QM S53411; 2 ♀, same data but 31 Dec 1974-27 Mar 1975, QM S 53410; ♂, Amamoor Ck, 26°24'S 152°36'E, 120m, rainforest, pitfall trap, 24 Sep 2001-15 Jan 2002, G.B. Monteith, QM S54301; ♀, Dingo Ck, via Traveston, 26°20'S 151.52'E, SE.Q, 9 Nov-31 Dec 1974, G& S. Monteith, QM S54302. All in SE.Q. OTHER MATERIAL. QM S25200.

DIAGNOSIS. Males differ from those of *Kilyana corbeni* in having a distinct groove across the distal median apophysis of the palp; females differ in that the copulatory groove is broadly recurved and about 3.5 times wider than long

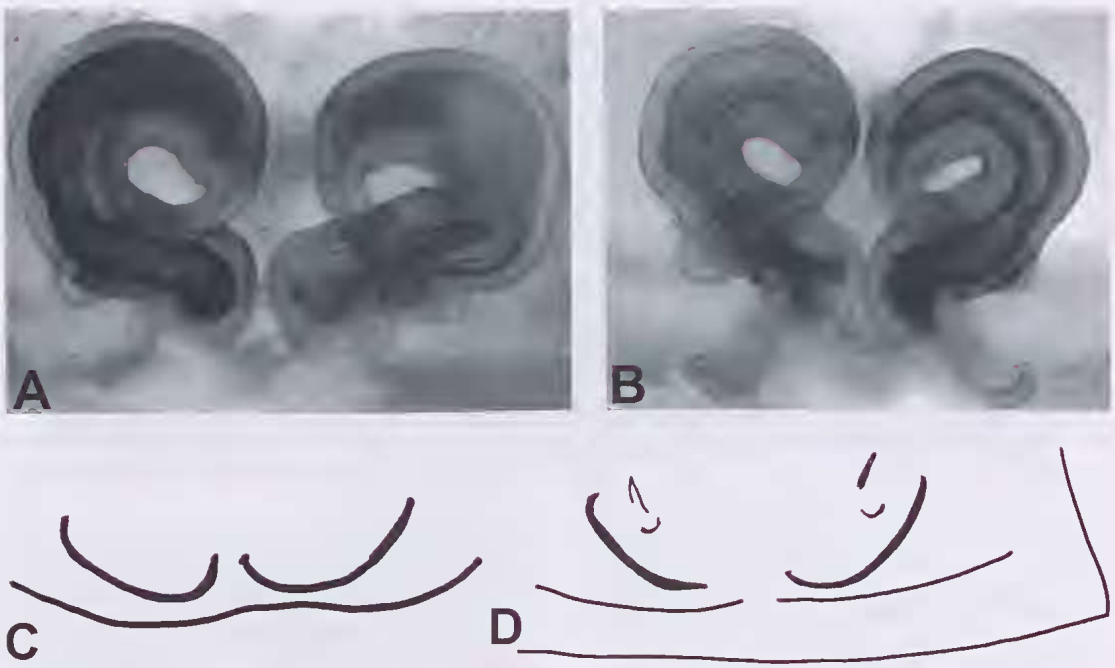

FIG. 48. *Kilyana eungella*, sp. nov., ♀; vulva, QMS13870 (A), QMS31404 (B); epigyne QMS13870 (C), QMS31404 (D).

whereas in *Kilyana corbeni* it is clearly an inverted U and only about twice as wide as long.

DESCRIPTION. Holotype ♂. Carapace 5.52 long, 3.76 wide. Abdomen 4.72, 3.44 wide.

Colour: carapace orange brown fine darker margins and along caput edge. Abdomen dorsally pallid with black rings at base of setae, darkness increases in back half. Legs not banded. Sternum with slightly darker areas opposite intercoxal corners; maxillae and labium anterior laterally dark. Abdomen ventrally is pallid with black transverse flecks.

Eyes: front edge of ALE along back edge of AME. Front edge of PLE along back edge of PME. ALE clearly smallest. ALE & PLE on common tubercle. AME:ALE:PME:PLE, 11:10:13:15. Eye group front width: back width: length, 63:87:40. Interspaces: AME-AME, 1.1; AME-ALE, 1.0; ALE-PLE, 0.0; PME-PLE, 1.6; PME-PME, 1.3.

Chelicerae: 3p, 3r.

Spines: I: fe pv1p1d3r4; pa r1; ti p2d3r3pv5rv4; me p5r4rv2.2.2. II: fe v1p2d4r4; pa r1; ti p2d3r2v2.2.2.2; me p5r4v2.2.2. III: fe p4d4r3; pa r1; ti p2d2r2v2.2.2; me p1.1.2r2.2.1v2.2.2. IV: fe p4d3r1; pa r1; ti p2d2r2v.2.2.2; me p1.1.1.2r2.2.2. Palp: fe p1d1.2, pa 0, ti p1.

Legs: scopula absent. I, II laterigrade. Tibial crack on I-IV grooved; 2-3 teeth on claws. Trochanteral notches shallow, (3-4 wider than deep) deeper in back of notch to front. Setation on legs, sternum, maxillae and labium short, sparse.

Palp (Fig. 49A-F): tibia stout, retrolaterally concave, glabrous with 4 processes: basoventrally a rounded diagonal ridge, retrodistally a flattened hand-shaped process; two very large modified

TABLE 21. Leg measurements of *Kilyana ingrami*, holotype male and allotype female.

Male	I	II	III	IV	Palp
Femur	3.77	3.85	3.46	3.85	1.92
Patella	1.92	1.85	1.61	1.69	0.85
Tibia	3.69	3.23	2.31	3.46	0.85
Metatarsus	3.77	3.00	2.77	4.38	2.07
Tarsus	1.38	1.23	1.23	1.38	-
Total	14.53	13.16	11.38	14.76	5.69
Female	I	II	III	IV	Palp
Femur	3.15	2.54	2.85	3.31	1.46
Patella	1.92	1.69	1.31	1.85	0.92
Tibia	2.77	2.38	1.69	2.77	0.92
Metatarsus	2.54	2.31	2.23	3.85	1.23
Tarsus	0.92	1.00	0.92	1.23	-
Total	11.30	9.92	9.00	13.01	4.53

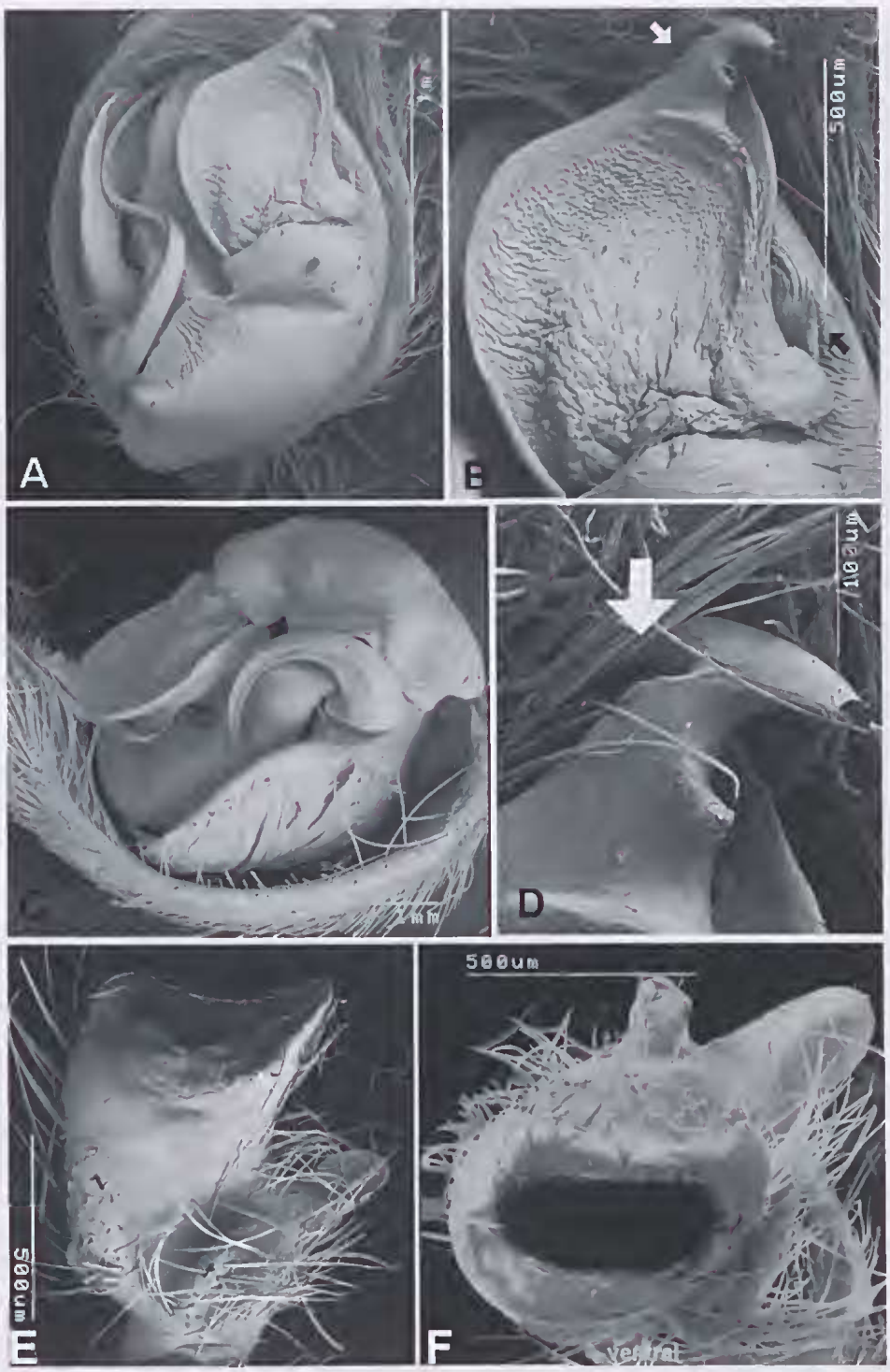

FIG. 49. *Kilyana ingrami*, sp. nov., ♂ palp, scanning electron micrographs. A, C, cymbium and bulb, ventral (A) and prolateral (C) view; B, D, median apophysis, with distal groove (arrow), ventral view. E, F, ♂ palpal tibia, ventral (E) and axial view looking to base (F).

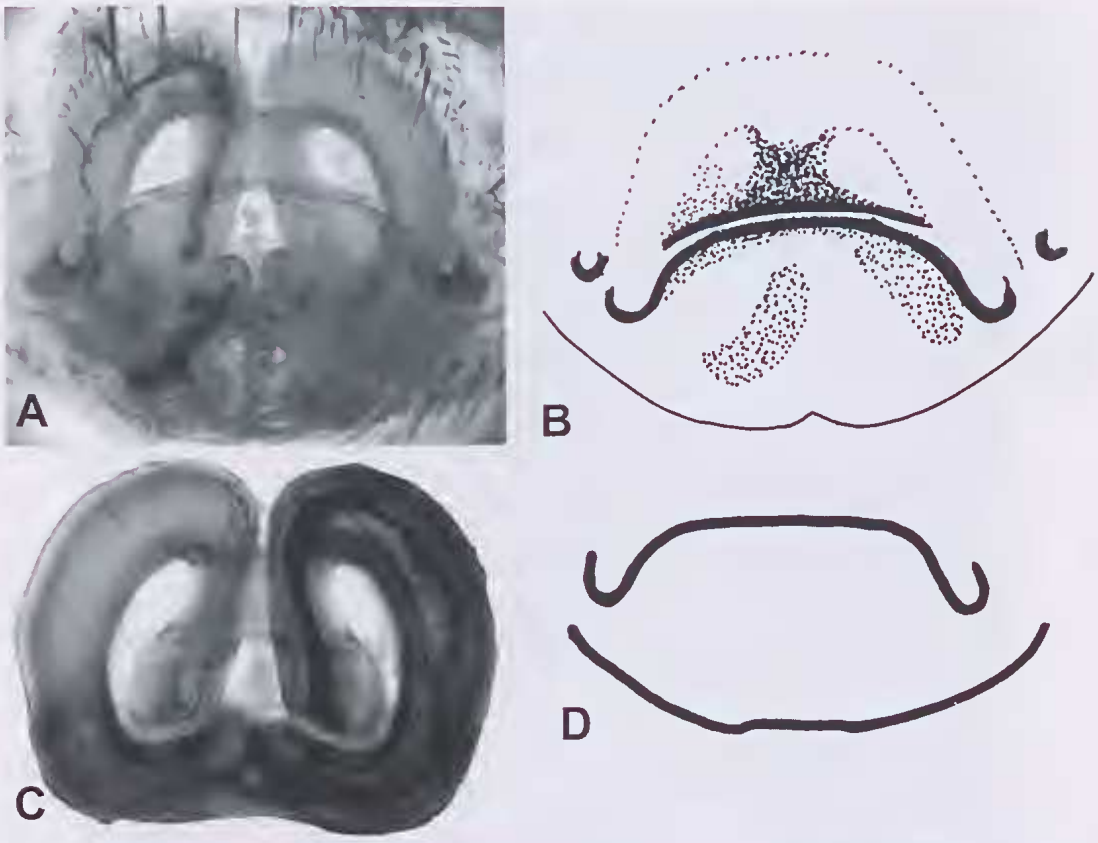

FIG. 50. *Kilyana ingrami*, sp. nov., ♀, A, B, D, epigyne, showing variability in transverse groove; C, vulva.

spines retrobasally, dorsal spine short conical, broad; retrolateral a wider spine but diagonally truncate to base giving concave ovoid apex, dorsal surface convex; tibia excavate between mega-spines and cymbium. Cymbium: scopula extent apical 1/3; dorso-basally with very sclerotised collar; dorsally with large basal flattened area; apically folded to make broad tip and retrolateral groove apically. Tegulum large basal and retrolateral 'mirror C' shaped, subtegular shield arises up beside cymbium on prodorsum. Embolus S-shaped, basally small, probasal with long rectangular flange, broken paraembolic process passes ventrally then reflexes forward arising near cymbial groove with flared tip. Median apophysis large, sclerotised, triangular with two flanges on each side, all converge apically.

Allotype ♀. As for male except as follows: Carapace 5.68 long, 3.92 wide. Abdomen 5.28, 3.76 wide.

Carapace: Markings on lateral cephalothorax darker; rings on distal femora- metatarsi; pilosity like male but hairs darker.

Chelicerae: 3p, 3r.

Eyes: AME:ALE:PME:PLE, 10:11:12:16. Eye group front width: back width: length, 79:104:43. Interspaces: AME-AME, 1.3; AME-ALE, 1.4; PME-PLE, 2.7; PME-PME, 1.8. Front edges of ALE behind back edge of AME. Front edge of PLE is behind back edge of PME.

Spines: I: fe pv1p1d3r3; pa 0; ti pv5rv4; mc v2.2.2. II: as for I but fe p3d3r3. III: fe p4d3r4; pa r1; ti p2d2r2v2.2.2; mc p1.2.2r.2.2.2v2.2.2. IV: fe p3d3r1; pa r1; ti p2d2r2v2.2.2; mc p1.1.1.2r2.2.2v2.2.2. Palp: fe d1.2; pa 1; ti p2d1; ta p3r3.

Legs: scopula on tarsi I, II; weak and weak in distal third of metatarsi I, II.

Epigyne (Fig. 50A-D): a broad excavate shield-shaped plate, centrally with wide inverted U-shaped ridge with recurved end; vulva G-shaped.

DISTRIBUTION AND HABITAT.Rainforest in the Conondale Range, SE Qld.

Kilyana kroombit sp. nov.
(Figs 35, 44D, 51, 52; Table 22)

ETYMOLOGY. A noun in apposition, from the type locality.

MATERIAL. HOLOTYPE: 1 ♂, Kroombit Tops (Site 5), 24°25'S 151°03'E, SE.Q, rainforest, pitfall, 10-18 Dec 1983, G.Monteith, V.Davies, J.Gallon, G.Thompson, QM S31401. PARATYPES. Allotype ♀, as for holotype, QM S31402; 2 ♀, Kroombit Tops, Beauty Spot 98, 24°25'S 151°03'E, rainforest, 9-19 Dec 1983, V.Davies, J.Gallon, QM S32951; 2 ♂ 1 ♀ [3 juv.], Kroombit Tops, 24°25'S 151°03'E, pitfall, 23 Feb 1982, G. Monteith, R. Raven, D. Yeates, QM S32784. All in SE.Q. OTHER MATERIAL. 3 juveniles, as for QM S32784.

DIAGNOSIS. Males differ from those of *Kilyana hendersoni* in the much less extensive groove retrolaterally on the tibial apophysis, the less expansive median apophysis and the absence of the paraembolic fringe, from the sympatric *K. obrieni* in the presence of a groove on the palpal tibia. Females have the most subtle epigynes of the genus; it is broad with at most a tiny medial inverted U-shaped aperture and very shallow lateral grooves.

DESCRIPTION. Holotype ♂. Carapace 5.04 long, 3.92 wide. Abdomen 4.32, 3.20 wide.

Colour: carapace and legs orange brown with fine dark bands anteriomedially, lateral of eyes and PLE, along caput edge and distally along interstrial ridges and radially from fovea. Two dark stripes down each chelicera. Abdomen fawn with 4 irregular darker areas in posterior half; ventral abdomen pallid with black flecks centrally. Legs yellow brown with dark mottling under femora. Distal metatarsi darker.

Eyes: AME:ALE:PME:PLE, 10:13:10:14. Eye group front width: back width: length, 64:86:38. Interspaces: AME-AME, 1.0; AME-ALE, 1.0; PME-PLE, 1.8; PME-PME, 1.3.

Spines: I: fe pv1p1d3r4; pa r1; ti p3d3r3pv5rv4; mc p3r3v2.2.2. II: fe pv1p3d3r4; pa r1; ti p2d3r3pv5rv4; mc p3r3v2.2.2. III: fe p4d3r4; pa r1; ti p2d2r2v2.2.2; mc p1.2.2r2.1.2v2.2.2. IV: fe p4d3r2; pa r1; ti p2d2r2v2.2.2; mc p5r6v8. Palp: fe p1d1.2.

Legs: scopula absent. Claws with 2-3 teeth. Tibial crack on I-IV distinct on both sides of tibia. Trochanteral notches shallow, deeper in back of notch to front, ea. 4 × wider than deep. Tufts distinct, united.

Palp (Fig. 51A-D, 52D,E): patella slightly inerassate with distodorsal sclerotised extension. Tibia with long, deep, diagonal groove across retrolateral face and forming uniform mound basally; rounded ridge on dorsal side; apically on lower side a low conical process beside longer blade-like process set or long retrodorsal ridge along tibia edge. Opposing edge of cymbium basally rounded forming tube with diagonal groove retrodorsally across cymbial corner; cymbial scopula dorsally for distal 1/2; cymbium asymmetrically folded apically with broad folded margin proventrally; prolateral paracymbial flange long, strong continues to tip to form groove. Tegulum large bowl-like on retrobasal corner, with ovoid window retrolaterally from which arises small slender hooks; median apophysis with basal translucent flange orthogonally. Embolus originates prodistally, tapers quickly diagonal across to apical cymbial groove retrolaterally.

Allotype ♀. Carapace 5.92 long, 4.48 wide. Abdomen 5.76, 3.92 wide.

Colour: darker areas more extensive on cephalothorax, triangular dark prefoveal area. Abdomen light brown dorsally with dark 'shoulders' median dark dome broken as it widens posteriorly as two dark bands with series of 4 vaguely defined dark chevrons down back; ventrally pallid with large area of dark flecking centrally. Sternum fawn with radiating dark line, coxae and legs with scattered dark flecking darkest on distal femora and metatarsi. Chelicerae orange brown with 2 dark bands down each and converging distally.

Chelicerae: 3p, 3r.

Eyes: AME:ALE:PME:PLE, 12:12:13:14. Eye group front width: back width: length, 83:110:41.

TABLE 22. Leg measurements of *Kilyana kroombit*, holotype male and allotype female.

Male	I	II	III	IV	Palp
Femur	3.92	3.69	3.38	4.23	1.69
Patella	1.77	1.61	1.31	1.31	1.08
Tibia	4.23	3.23	2.54	3.61	0.77
Metatarsus	4.08	3.31	3.00	4.85	1.46
Tarsus	1.77	1.38	1.31	1.61	
Total	15.77	13.22	11.54	15.61	5.00
Female	I	II	III	IV	Palp
Femur	3.61	3.61	3.00	4.00	1.54
Patella	1.85	2.00	1.69	1.77	1.00
Tibia	3.08	2.54	2.00	3.08	1.00
Metatarsus	3.00	2.61	2.61	3.92	1.38
Tarsus	1.00	1.08	1.00	1.31	
Total	12.54	11.84	10.30	14.08	4.92

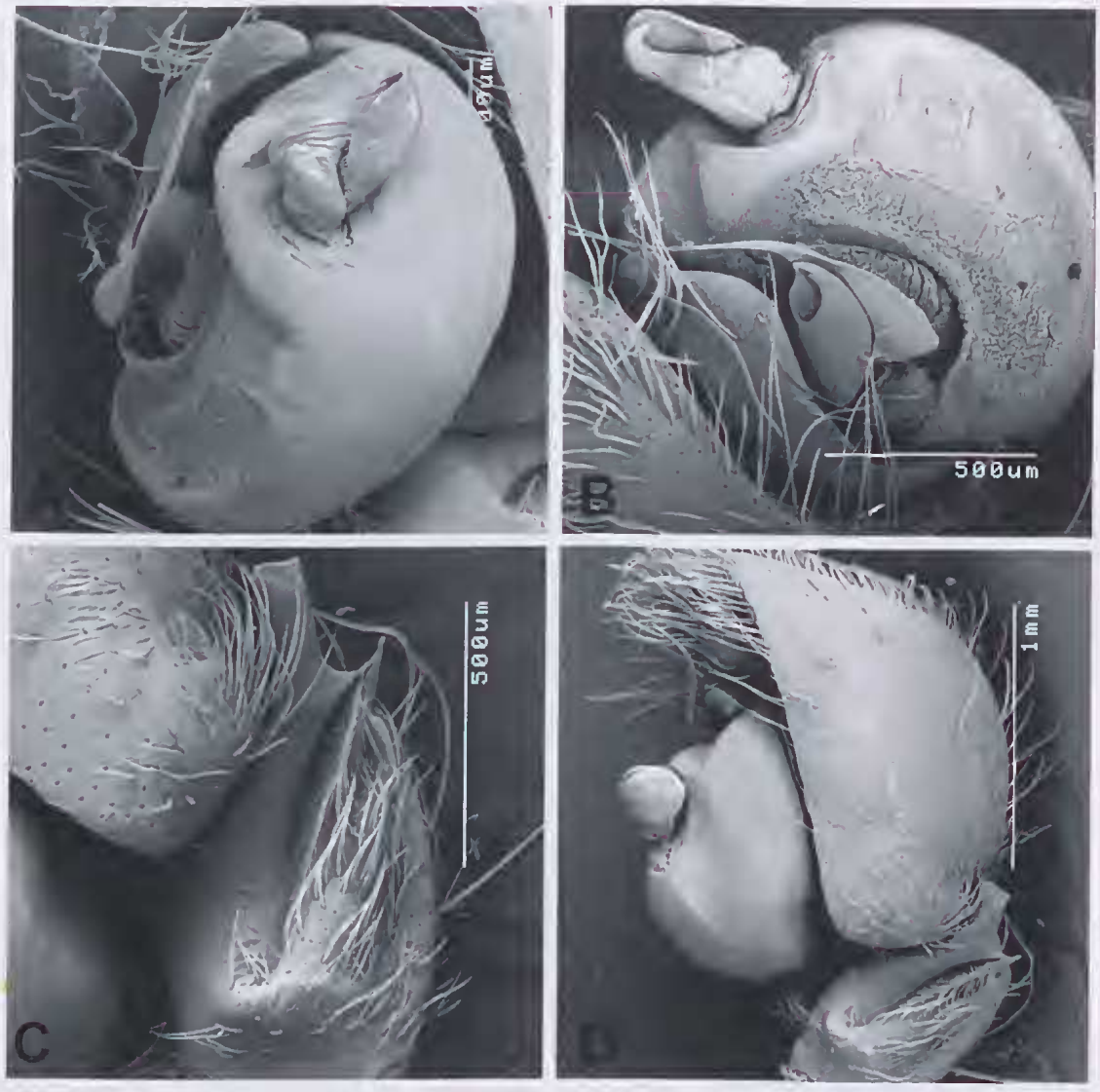

FIG. 51. *Kilyana kroombit*, sp. nov., ♂ palp, scanning electron micrographs. A, B, cymbium and bulb, ventral (A) and prolateral (B) view; C, tibia and cymbium and bulb (D), retrolateral view.

Interspaces: AME-AME, 1.3; AME-ALE, 1.2; PME-PLE, 2.3; PME-PME, 1.7.

Spines: I: fe pv1p1d2r2; pa 0; ti pv5rv4; me v2.2.2. II: as for I but fe p2d3r3. III: fe p4d3r2; pa r1; ti p2d2r2v2.2.2. me p1.2.2r1.1.1.2v2.2.2. IV: fe p1d3r1; pa r1; ti p2d2r2v5; me p1.1.1.2r1.1.1.2 v1.2.2.2. Palp: fe d1.2; pa 0; ti p2d1; ta p3d1.

Epigyne (Fig. 52A-C): a very wide flat plate with pair of parallel grooves anteriorly, and low mound medially, a subdistal median cone; vulva sigmoidal, very small.

DISTRIBUTION AND HABITAT. Rainforest and adjacent open forest at Kroombit Tops, SE Qld.

Kilyana lorne, sp. nov.
(Figs 35, 53; Table 23)

ETYMOLOGY. Noun in apposition with the type locality.

MATERIAL. HOLOTYPE: ♂, Lome SF, nr Lome, site 86(4), NSW, 31°35'S 152°57'E, D. Milledge, 11 Apr 1979. AM KS5662. PARATYPE. ♂, same data but site 86(3), AM KS5384.

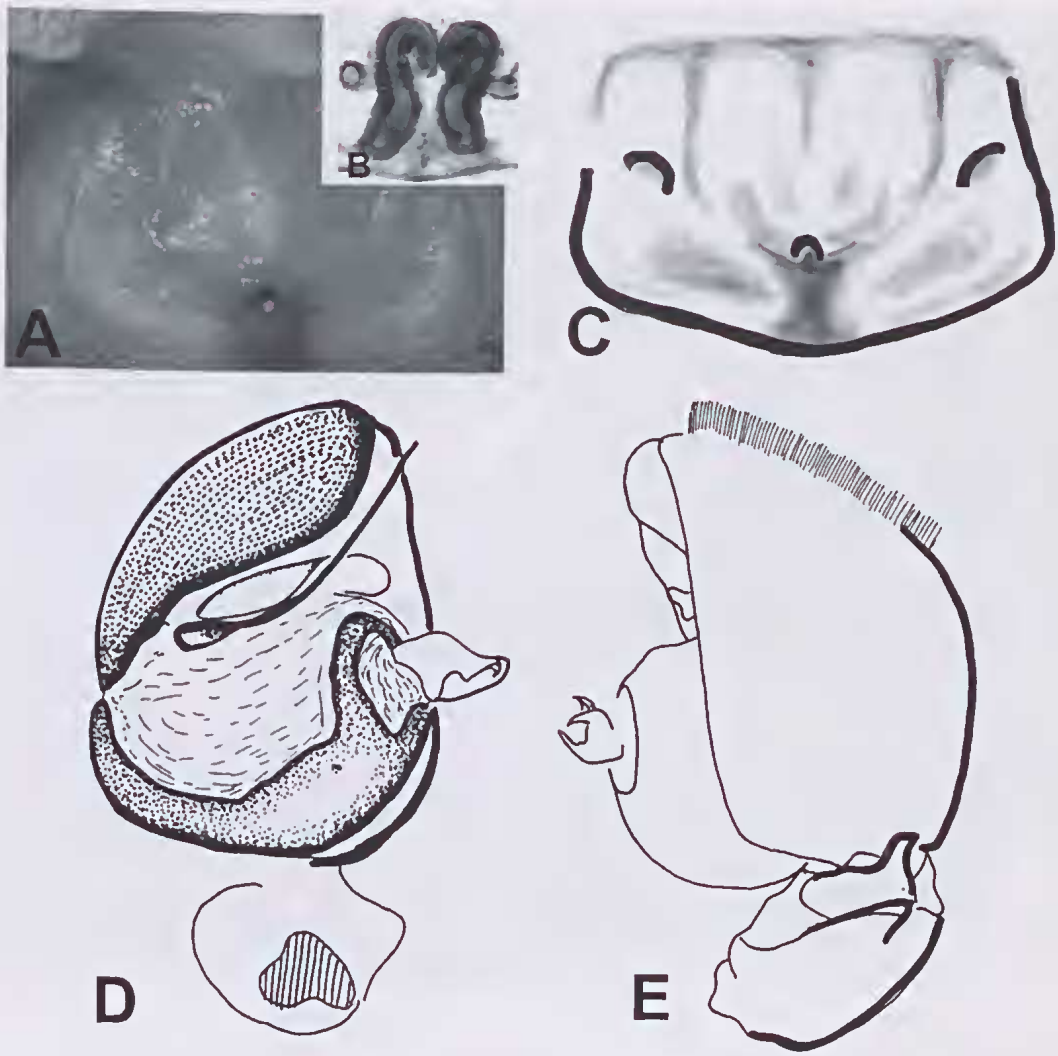

FIG. 52. *Kilyana kroombit*, sp. nov. A-C, ♀; A,C, epigyne, B, vulva. D-E, ♂ palpal tibia, cymbium & bulb ventral (D) and retrolateral (E) views.

DIAGNOSIS. Males resemble those of *Kilyana hendersoni* in the grooved form of the tibial apophysis but differ in the distal spinose keel (Fig. 53D,E).

DESCRIPTION. Holotype ♂. Carapace 6.06 long, 4.63 wide. Abdomen 6.56 long, 3.95 wide.

Colour: carapace red brown with radiating black lines along striae and thicker irregular band submarginally. Abdomen dorsally fawn with brown dorsal sigilla posteriorly with dark crescent; anterior scute weak; venter pallid without pattern except around genital area. Legs dark orange brown.

Carapace: strong bristles of long off-white hairs overhang lateral eyes, fewer such hairs between PME. AME on conical mound.

TABLE 23. Leg measurements of *Kilyana lorne* sp. nov. holotype male.

	I	II	III	IV	Palp
Femur	4.50	4.38	4.13	5.06	2.44
Patella	2.31	2.19	2.00	2.13	1.38
Tibia	4.81	4.19	3.06	4.00	1.13
Metatarsus	4.44	4.00	3.56	5.31	-
Tarsus	1.63	1.44	1.69	1.69	1.88
Total	17.69	16.20	14.06	18.19	6.83

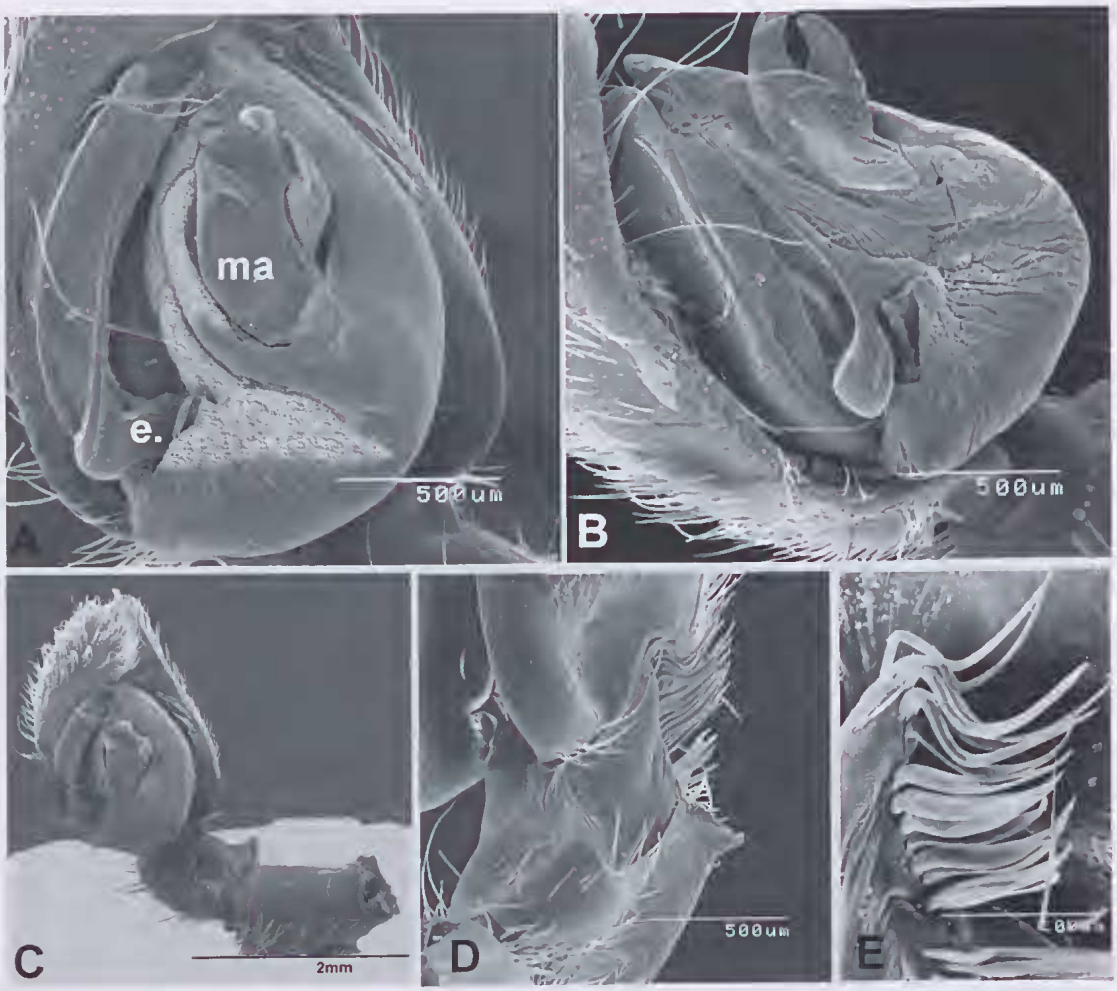

FIG. 53. *Kilyana lorne*, sp. nov., ♂ palp, scanning electron micrographs. A, B, cymbium and bulb, ventral (A) and prolateral (B) view; C, patella, tibia and cymbium, showing small tibia, ventral view; D, E, tibial apophysis, retrolateral view.

Chelicerae: 2p, 3r.

Spines: I: fe pv1p1d3r5; pa r1; ti p2d3r3pv5rv4; me p3r3v2.2.2. II: as I but fe, pv1p3d3r4; pa r1. III: fe p4d3r4; pa r1; ti p2d2r2v2.2.2; me p1.2.2r1.1.1.2v2.2.2. IV: as III but fe p4d3r1; me p1.1.1.2r1.2.2v2.2.2. Palp: fe p1d1.1.2; pa 0; ti p1.

Legs: scopula weak but distinct on all tarsi; weak, of long hairs for length of metatarsi I, II, distal on III, absent on IV.

Palp (Fig. 53A-E): tibia retrolaterally with long groove (like *Kilyana hendersoni*) converging basally into conical mound, distodorsally above groove a small backwardly directed digitiform process; distal edge of groove forms conical process opposing broad, ovoid, shallow saddle on retrodorsal basal cymbium; the process distally with a distal ridge of spine-like bristles, most ventral basally sinuous (Fig. 53E). Tegulum C-shaped; tongue-like subtegular groove opposed tegulum with embolus originating prolaterobasally and lying transversely. Junction of tegulum and median apophysis unsclerotised with C-shaped distal tegular extension partially encircling chelate or apically bipartite median apophysis.

Female: unknown.

DISTRIBUTION AND HABITAT. Lorne State Forest, NSW.

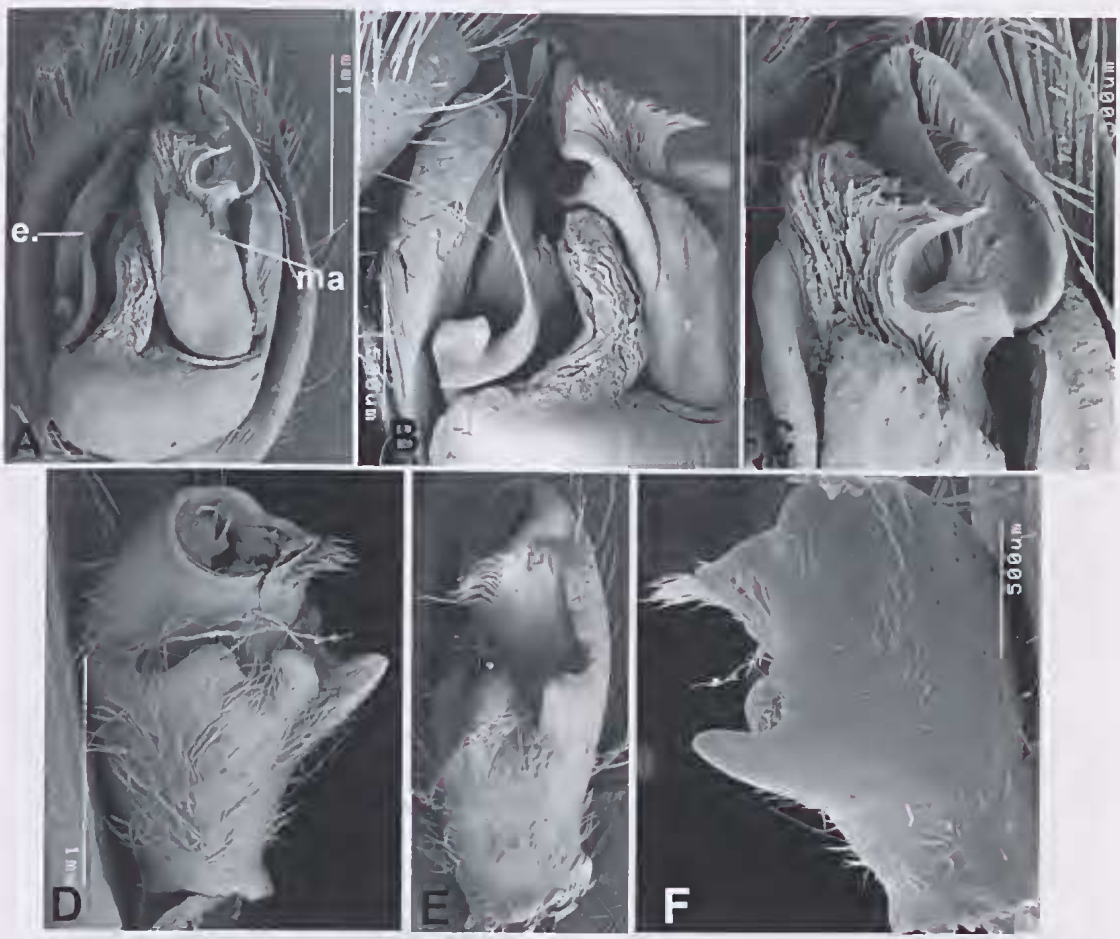

FIG. 54. *Kilyana obrieni*, sp. nov., ♂ palp, scanning electron micrographs. A, B, cymbium and bulb, ventral (A) and prolateral (B) view; C, patella, tibia and cymbium, showing small tibia, ventral view; D-F, tibial apophysis, retrolateral (D), ventral (E), dorsal (F) views.

Kilyana obrieni sp. nov.
(Figs 35, 54, 55; Table 24)

ETYMOLOGY. For the late Graham O'Brien, Director Administrative Services, Queensland Museum, 1986-1997.

MATERIAL. HOLOTYPE: ♂, QMS58264, Kroombit Tops, SE.Q, 24°22'S 152°01'E, R. Raven, G Monteith, 28 Feb 1982. PARATYPE: allotype ♀ QMS 58264, as for holotype.

DIAGNOSIS. Males are easily separated from the sympatric *Kilyana kroombit* by the very sculptured and complex median apophysis and females differ in the simple S-shaped spermathecae.

DESCRIPTION. Holotype ♂. Carapace 7.50 long, 5.45 wide. Abdomen 7.20 long, 4.89 wide.

Colour: Carapace dark orange brown with dark radiating lines; darker around eyes; dark bands down chelicerae; abdomen dorsally light greenish brown; no scute evident anteriorly; anterior medially pallid with 2 irregular darker stripes and pallid zone through to anterior pair of dorsal sigilla; venter like female

Chelicerae: 3p, 3r.

Spines: I: fe pv1p1d3r3; pa r1; ti p3d3r3pv5rv4; me p3r3v2.2.2. II: as I but fc pv1p3d3r3; pa r1. III: fe p3d3r3; pa r1; ti p2d2r2v2.2.2; me p1.2.2r1.1.2v2.2.2. IV: as III but fc p3d3r1; me p1.1.1.2r1.1.1.2v2.2.2.2.2. Palp: fe p1d1.2.

Legs: scopula absent; claws with 3-4 long teeth; tibiae to tarsi I, II with very long curved hairs laterally.

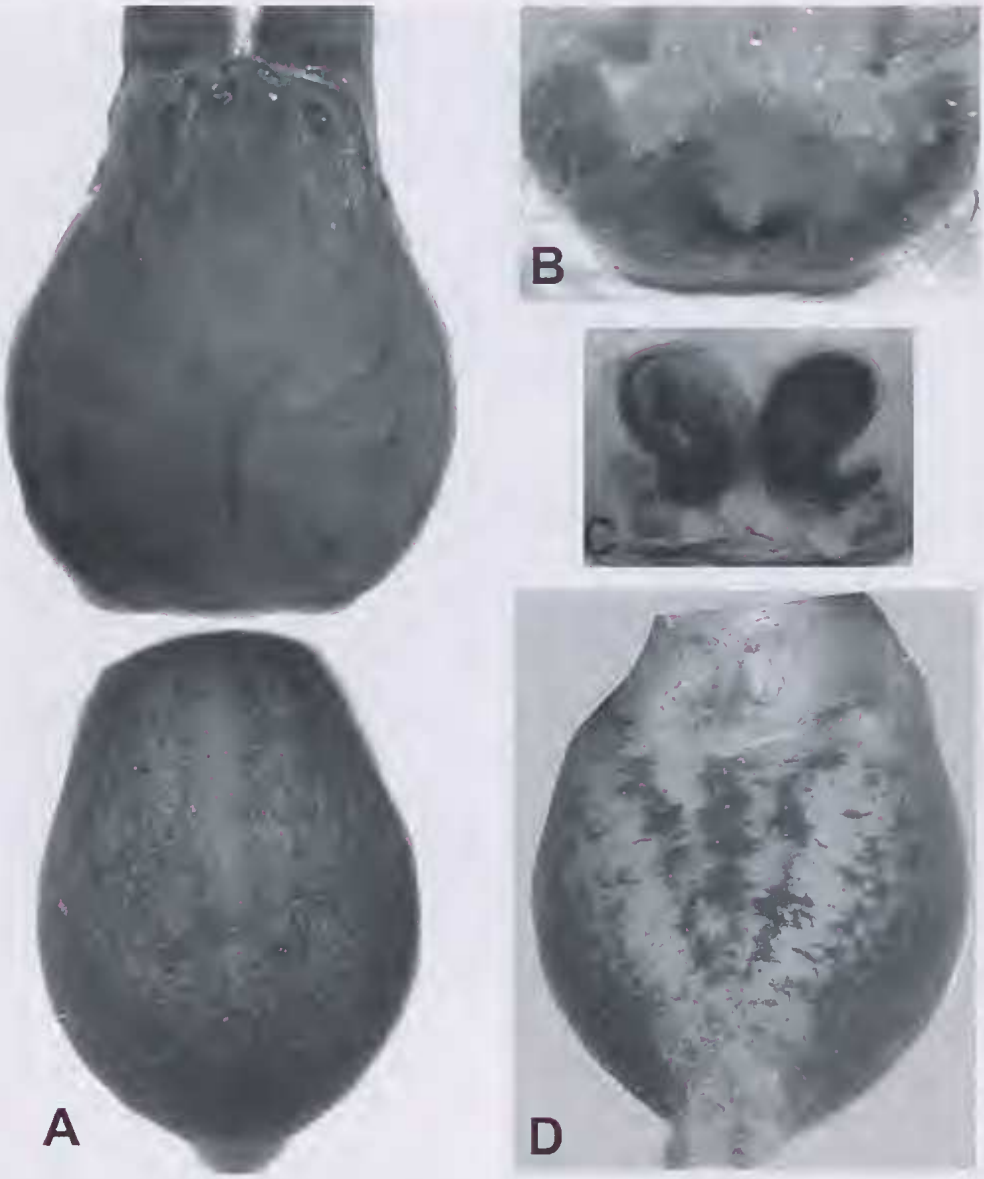

FIG. 55. *Kilyana obrieni*, sp. nov., ♀. A, cephalothorax & abdomen, dorsal view; B, epigyne; C, vulva; D, abdomen, ventral view.

Palp (Fig. 54A-F): tibia with low rounded dorsolateral tibial apophysis, tibia roughly barrel-shaped with distoventral deep concavity for distal third and bounded by two roughly triangular ventral processes. Cymbium: rounded rectangular, apically asymmetrical with extensive hirsute apical fold in prodistal corner and large flat retroventral flange basally; scopula dorsally for distal 1/3. Tegulum large, basally with two unsclerotised lamellae: one large prolateral and one slender retrolaterally that flanks large free complex median apophysis which is a large heavily sclerotised with transverse wide keels, two distal prongs and one subdistal and distodorsally with roughly ovoid scoop. Embolus with basodorsal 'thumb' originates distal of tegulum prolaterally quickly flattens then becomes filiform and lies in groove formed by distal edge of median apophysis but reaching paracymbial flange.

TABLE 24. Leg measurements of *Kilyana obrieni* sp. nov. holotype male and allotype female.

Male	I	II	III	IV	Palp
Femur	6.31	5.63	4.94	5.94	2.88
Patella	2.56	2.75	2.25	2.31	1.13
Tibia	6.75	5.00	3.56	4.75	1.25
Metatarsus	7.31	5.00	4.19	6.63	
Tarsus	2.56	1.69	1.94	1.94	2.31
Total	25.49	20.07	16.44	21.57	7.57
Female	I	II	III	IV	Palp
Femur	5.44	5.38	5.00	5.94	2.56
Patella	3.13	3.00	2.56	2.69	1.56
Tibia	4.75	3.44	3.19	4.56	1.63
Metatarsus	4.38	3.13	5.56	5.69	
Tarsus	1.38	1.25	1.50	1.50	2.13
Total	19.08	16.20	17.50	20.38	7.88

Allotype ♀. Carapace 8.16 long, 7.64 wide. Abdomen 9.39 long, 6.20 wide.

Colour: carapace dark orange brown with dark radiating lines on caput and thorax which break up into reticulate areas laterally; large dark bands down chelicerae; abdomen dorsally dark brown with pallid ostiate region flanked by 4 sigilla posteriorly with black crescents; venter mostly pallid yellow brown with medial zone forming three irregular broken longitudinal bands flanked by paler lines. Legs orange brown.

Eyes: lateral eyes on common tubercle; AME on distinct mound.

Chelicerae: p2, 3r.

Legs: scopula on metatarsi I, II distinct, denser distally but for length; dense, uniform for length of tarsi I, II; few scopuliform hairs on distal lateral metatarsi III.

Spines: I: fe pv1p1d3r2; pa 0; ti pv5rv4; me v2.2.2. II: as for I but fe p4d3r3. III: fe p4d3r3; pa r1; ti p2d2r2v2.2.2; me p1.2.2r2.1.2v2.2.2. IV: as III but fe p4d3r1; me p1.1.1.2r1.2.2v2.2.2. Palp: fe d1.2; pa d1.2; ti p2d1; ta p2.1r2.

Claws: 2 long and one basal shorter tooth on paired claws; palpal claw with 6 long teeth.

Spinnerets: retracted; PMS with spigots in dorsal band and 2 apically.

Epigyne (Fig. 55B,C): externally a wide procurved distal ridge with short median septum; internally spermathecae form strongly folded S.

DISTRIBUTION AND HABITAT. Open forest at Kroombit Tops; it occurs with *K. kroombit*.

ACKNOWLEDGEMENTS

We thank Australian Biological Resources Study for grant support and Charles Griswold, Norman Platnick, Mark Harvey, and Barbara Baehr for comments on the manuscript and access to her collection. Access to the collections of Natural History Museum, London; Musée National d'Histoire Naturelle, Paris; Naturhistorisches Museum, Wien, Natal Museum, Otago Museum, Western Australian Museum; South Australian Museum; Australian Museum was kindly provided by P. Hillyard, C. Rollard and the late J. Heurtault, J. Gruber, M. Bartholomew, South Africa, the late Ray Forster, Mark Harvey, David Hirst and Michael Gray, respectively. Valerie Davies commented on the manuscript and the project. Wendy Hebron provided assistance and collection management support. Helen Stark illustrated Figures 11A,D, 18, 25, 39E; Barbara Baehr illustrated Figures 8A, 24A, 28C and 32E,F. Photomicrographs were made with a Nikon Coolpix 880 provided by Japanese Dept of Health. For all of that, we are most grateful.

LITERATURE CITED

BAEHR, B. 2003. Revision of the tropical genus *Tropasteron* gen. nov. of North Queensland: a new genus of the *Asteron*-complex. Memoirs of the Queensland Museum 49: 29-64.

BERTKAU, P. 1882. Ueber das Cribellum und Calamistrum. Archiv fur Naturgesehiehte 48: 316-362.

BOSSELAERS, J. 2002. A eladistie analysis of Zoropsidae (Araneae), with the deseription of a new genus. Belgian Journal of Zoology 132: 141-154.

CODDINGTON, J. & LEVI, H.W. 1991. Systematics and evolution of spiders (Araneae). Annual Review of Ecology and Systematies 22: 565-592.

DALLWITZ, M.J., PAINE, T.A. & ZURCHER, E.J. 1998. Interaetive keys. Pp. 201-212. In Bridge, P., Jeffries, P., Morse, D.R. & Scott,P.R. (eds) Information teehnology, plant pathology and biodiversity. (CAB International: Wallingford.)

DAVIES, V. 1976. Spiders in fauna of eastern Australian rainforest: preliminary report on sites surveyed by the Queensland Museum in mid-eastern and north-eastern Queensland (Queensland Museum, Brisbane).

1977. Spiders in Fauna of eastern Australian rainforests II. (Queensland Museum: Brisbane).

1986a. New Australian speeies of *Otira* Forster & Wilton, 1973 and *Storenosoma* Hogg, 1900 (Araneae, Amaurobiidae). Memoirs of the Queensland Museum 22: 237-251.

1986b. Australian Spiders (Araneae). Colleetion, preservation and identifieation. Queensland Museum Booklet 14: 1-60.

DIPPENAAR-SCHOEMAN, A. & R. JOCQUé 1997. African Spiders. An identification manual. Plant Protection Research Institute Handbook no. 9: Agricultural Research Council, South Africa.

FANG, K., YANG, C., LUE, B., CHEN, S. & LUE, K. 2000. Phylogenetic corroboration of Superfamily Lycosoidae [sic.] spiders (Araneae) as inferred from partial Mitochondrial 12S and 16S Ribosomal DNA sequences. Zoological Studies 39: 107-113.

GOLOBOFF, P.A. 1997. NONA version 2.0, software. (Entomology Department, American Museum of Natural History: New York).

GRAY, M. R. & THOMPSON, J. 2001. New lycosoid spiders from southern Australia and North West Cape Peninsula (Araneae: Lycosoidea). Records of the Western Australian Museum Supplementary Series 64: 159-170.

GRISWOLD, C.E. 1990. A revision and phylogenetic analysis of the spider subfamily Phylexidinae (Araneae, Amaurobiidae). Bulletin of the American Museum of Natural History 196: 1-200.

1991. A revision and phylogenetic analysis of the spider genus *Machadonia* (Araneae, Lycosoidea). Entomologia Scandanavica 22: 305-351.

1993. Investigations into the phylogeny of the lycosoid spiders and their kin (Arachnida, Araneae, Lycosoidea). Smithsonian Contributions to Zoology 539: 1-39.

1994. A revision and phylogenetic analysis of the spider genus *Phanotea* Simon (Araneae, Lycosoidea). Annales Sciences Zoologique 273: 3-63.

2002. A revision of the African spider genus *Raecius* Simon, 1892 (Araneae, Zoroeratidae). Proceedings of the California Academy of Sciences 53: 117-149.

GRISWOLD, C.E., CODDINGTON, J.A., PLATNICK, N.I. & FORSTER, R.R. 1999. Towards a phylogeny of entelegyne spiders (Araneae, Araneomorphae, Entelegynae). Journal of Arachnology 27: 53-63.

GRISWOLD, C. E. & UBICK, D. 2001. Zoropsidae: a spider family newly introduced to the USA (Araneae, Entelegynae, Lycosoidea). Journal of Arachnology 29: 111-113.

HARVEY, M.S. 1995. The systematics of the spider family Nicodamidae (Araneae: Amaurobioidea). Invertebrate Taxonomy 9: 279-386.

LEHTINEN, P.T. 1967. Classification of the Cribellate spiders and some allied families, with notes on the evolution of the suborder Araneomorpha. Annales Zoologici Fenniei 4: 199-467.

LEHTINEN, P.T. & HIPPA, H. 1979. Spiders of the Oriental-Australian region 1. Lycosidae: Venoniinae and Zoicinae. Annales Zoologici Fenniei 16: 1-22.

LEVY, G. 1990. On the cribellate spider *Zoropsis lutea* in Israel (Araneae, Zoropsidae). Bulletin of the British Arachnological Society 8: 139-143.

2003. Spiders of the families Anyphaenidae, Hahniidae, Ctenidae, Zoridae, and Hersiliidae (Araneae) from Israel. Israel Journal of Zoology 49: 1-31.

MARPLES, B.J. 1968. The hypochiloid spiders. Proceedings of the Linnean Society London 179, 11-31.

MILLOT, J. 1933. Notes complémentaires sur l'anatomie des liphistiides et des hypochilides, à propos d'un travail récent de A. Petrunkevitch. Bulletin de la Société zoologique de France 56, 217-25.

1936. Métamérisation et museulature abdominale chez les aranéomorphes. Bulletin de la Société zoologique de France 61, 181-204.

NIXON, K.C. 2002. Winclada, software. (Author)

PAGE, R.D.M. 2001. Nexus Data Editor, software. (Author)

PLATNICK, N.I. 1999. A revision of the Appalachian spider genus *Liocranoides* (Araneae: Tengellidae). American Museum Novitates 3285: 1-13.

2000. A relimitation and revision of the Australasian ground spider family Lamponidae (Araneae: Gnaphosoidea). Bulletin of the American Museum of Natural History 245: 1-330.

2004. Catalog of spiders of the world, version 4.5. http:/research.amnh.org/entomology/spiders/catalog81-87/index.html.

RAVEN, R.J. 1986. A cladistic reassessment of Mygalomorph spider families (Araneae). Pp. 223-227. In, Eberhard, W.G., Lubin, Y.D. & Robinson, B.C. (eds) Proceedings of the Ninth International Congress of Arachnology, Panama, 1983. (Smithsonian Institution Press: Washington D.C.).

1994. Mygalomorph spiders of the Barychelidae in Australia and the Western Pacific. Memoirs of the Queensland Museum 35(2): 291-706.

RAVEN, R.J., BAEHR, B.C. & HARVEY, M.S. 2002. An interactive key to Australian spider Subfamilies. (Australian Biological Resources Study, CSIRO Publishing: Melbourne).

RAVEN, R.J. & STUMKAT, K. 2003. Problem solving in the spider families Miturgidae, Ctenidae and Psechridae (Araneae) in Australia and New Zealand. Journal of Arachnology 31: 105-121.

RAVEN, R.J., STUMKAT, K. & GRAY, M.R. 2001. Revisions of Australian ground-hunting spiders: 1. *Amauropelma* gen. nov. (Araneomorphae: Ctenidae). Records of the Western Australian Museum Supplementary series 64: 187-227.

SILVA, D. 2003. Higher-level relationships of the spider family Ctenidae (Araneae: Ctenoidea). Bulletin of the American Museum of Natural History 274: 1-86.

SIMON, E. 1892. Histoire naturelle des araignées. Paris 1: 1-256.

1897. Histoire naturelle des araignées. Paris, 2: 1-192.

SUHM, M., THALER, K. & ALBERTI, G. 1996. Glands in the male palpal organ and the origin of the mating plug in *Amaurobius* species (Araneae: Amaurobiidae). Zoologische Anzeiger 234: 191-199.

WILKINSON, M. 1992. Ordered versus unordered characters. Cladistics 8: 375-385.

APPENDIX 1: Data Matrix

```
xread
'Zoropsidae_last_via_DELTA 11:57 06-AUG-03'
66 44
Tengella                0000000000000?000000000?0000?000102100000000000001000001000000000
Psechrus                0000100000?????????000000?0100?1???00100000001111000000001000000001
Fecenia                 0000000010000?000001000?0100?000000100000001111000??000100000??0001
Ududbada                111?00101100?2?1100011011?????????20212000?0000011?0?101110??0101
Uduba3                  111?00101100?2?1100011011?????????20212000?000001120?101100??0101
Zorocrates              001?000010000?000001001001000?02??000021000?000001100110210001??0?00
Devendra seriatum       101?00100000010??0000000?000201???000000100??00001O?00101100??0?20
Devendra pardale        101?00100000010??0000000?0002000010000000100??00001020?101100??0?20
Campostichomma          101100101000010??000000100100?01??20212010O??000010201101100l??0120
Raecius                 111?00100000010??0001000?0000?000000000000??000011O0?101110l??0102
Zorodictyna             110?001100000?000000100?000200000001000000?000001110?1011201??0?01
Takeoa                  011?000000000?000000100?0200?02??000011100?1001?1100?0?51000??0?01
Acanthoctenus           010000000000010??0000000?0100?1???000100110010010110010151200??0100
Zoropsis France         111100000000?010000100?0301?001000000010021001111101015110000010l
Zoroposis Canary I      111100000000?010000100?0001?00100000001002100111l?010151100000101
Kilyana hendersoni      111100000l000?010000011001l?????000000100210011110011121201000111
Birrana bulburin        111100000l000?010001100?011?????002000100210011113011121201000111
Krukt piligyna          111100010l000?010000100?0101?000100200010021001111301112l201000111
Megateg elegans         111100000l000?010001100?0401?1???002000100210011113011121201000111
Huntia deepensis        111100010000l1??0000010?0000?02??002000100210001111010111001000111
Uliodon NZ              011100000l1?????000100?0000?02??002000100200001110011111000000111
Amauropelma truel.      000000000000110??1000000?0002101??002000110110010100011111001000020
Machadonia robustus     100?000000001l??0000000?000201???13100010O?1000011101102110000012O
Machadonia urbense      110100000000l1??0000000?000200000131000100?1000011?011021100000120
Phanotea pering         111000001000l1??0000000?020200010020000000220000111010011000000?20
Phanotea spX            111000000001l1??0000000?020210010020000000?000011001101100O??0?20
Phanotea spA            111000000001l1??0000000?030210010020000000?000011??11011000??0?20
Senoculus               000?000010000?000000000?011??????10100011011000010010011101000102l
Mituliodon tarantul.    000000001000O?000000011010O?1???000020100010010111001000000000020
Dolomedes               000000001000O?000010011010O?1???100021100010000010100010111101020
Pisaura                 000000001000O?000011011010O?1???010001100010000000100010210101020
Trechalea               000001001100O?1?021001101O0?01??000010100010000000101050200010020
Rhoicinus               000011001000O?1?021001101102?1???000010100010000000100010001010020
Lycosa                  000010001000O?2?121001101O0?01??020010101010000010100000001010020
Sosippus                000010001000O?2?121001111100?01??020010101010000010101000000010020
Phoneutria              000000000000l1??0000000?0002001??021000110110010110001131200000020
Ctenus                  000000010000l1??0001000?0202001??021010111110010110001131200??0020
Stiphidion              000001010l?????000000?0100?1???201000100000100000100000000001001
Tapinillus              000000001000O?000000000?011??????001000000010100000100000210001021
Australian tengel.      000000100000O?000000000?0002001??002000100000000000011141101000120
Bengalla spV            001000100000O?2?000001110102O1???002000100000000101011131001000020
Miturga                 000000001000O?111201001101O1?1???002000000010000110001000000000020
Diaprograpta            000000001000O?110000011001O0?1???002000100010010110001000000000020
Argoctenus Q4           000000001000O?000000011010O?1???000000110110010110001000200000020;
ccode -0.65;
proc / ;
```